NoAW project

Innovative approaches to turn agricultural waste into eco-logical and economic assets

Deliverable 7.6

Final Stakeholder Webinar and its minutes

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1. Document Info

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1.3. Dissemination level

This deliverable is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 688338	
Dissemination Level	
PU Public	**PU**
CI Classified, as referred to Commission Decision 2001/844/EC	
CO Confidential, only for members of the consortium (including the Commission Services)	

2 Summary

Background	The project NoAW aims at contributing to a “near zero-waste” society by applying circular economy principles to residues and by-products from agriculture and vini-viti-culture to convert them into eco-efficient bio-based products (such as bioenergy, bio-fertilizers, bio-composites, bio-based plastics, biofuels). Several technologies and tools have been further developed to contribute to these aims. The final seminar aimed to gather scientists and end-users for discussion of NoAW results. This even combined short NoAW presentations and major project outcomes with industry round table discussions that provided an opportunity to network with other like-minded professionals.
Objectives	Our objective was to provide the delegates with improved knowledge on agro-waste management and highlight the potential of innovative tools to develop pathways from agricultural residues to new products. The event put the main focus on the presentation and the discussion of conversion and biorefinery technologies developed in the NoAW project. Besides, the open discussion and the B2B session provided an opportunity to network with other like-minded professionals. Due to the COVID-19 crisis both the timing and the way to deliver this event has been changed compared to the schedule foreseen in the contract. Originally, a live event was planned, but considering travel and meeting restrictions in combination with infection risks and company policies the event was organized as a webinar. The focus and potential modules of the event were discussed on several skype meetings for the preparation of the event, where the whole consortium participated and could share their opinion and suggestions.
Methods	An organisation committee was established at the beginning of 2020 for preparation activities by the participation of INRAE, ECOZEPT, ITRI and CBHU. The members of this group met regularly to discuss the steps need to be taken and emerging organizational issues about this event. The project partners were regularly updated on the monthly skype meetings. about the progress of the organisation and actions that are required from their side. The development of the stakeholder event followed several steps and close cooperation of the project partners. The preparation of the final stakeholder event started at the beginning of 2020, before the COVID -19 pandemic. By the end of June, it became clear that due to the pandemic situation and associated risk the event needs to be shifted to a later date and need to be changed to from a face-to-face event to an online webinar. To foster the participation of Chinese stakeholders, it was decided to split the webinar into 2 morning sessions; this new schedule

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	enabled to overcome difficulties caused by the time difference and to join stakeholders from the East- Asia regions. The Sli.do, an interactive questionnaire tool was used to get feedback from the audience and increase interaction in different topics. Sli.do aims to generate interactivity and to offer to the audience the opportunity to express their opinion even though they are shy. In the B2B session, the participants were invited to give an introduction about their company, products, services in the format of a pitch presentation. Different methods and channels were used to promote the event: posts on the NoAW homepage and the social media, LinkedIn, Twitter. The event was uploaded on the European Circular Economy Stakeholder Platform. A presentation was prepared and uploaded on the SlideShare platform. An English press release was prepared and translated into 8 languages.
Results & implications	Altogether 293 people registered to the event of which 55 were project partners and 238 external stakeholders. 45 countries were represented from all over the world. The profile of the registered external stakeholders the following: 34% R&D, 16% Industry, 14% Agricultural activity, 14% Other (e.g education, academia), 10% Consulting, 9% governmental organizations, 3% NGO. On the first day of the event, 196 participants join the webinar. The second day attracted 162 participants. **The first day** of the NoAW final stakeholder webinar was centred around the achievements of the NoAW project. This session was called as ***The Seven Seasons of the NoAW project***, that drove the audience through on the aims, challenges and the main results. **Season 1, Preparing the future** by Anne Verniquet (SOFIES) gave a good overview of critical challenges of the linear and fossil-based system and emphasize the advantages of bioeconomy. **Season 2 – People's needs** by Burkhard Schaer (Ecozept) presented the NoAW main learnings on identifying the needs of stakeholders. **Season 3 – The products in a basket** by David Bolzonella (INNOVEN) and Annamaria Celli (UNIBO) presented the new opportunities on producing high added value biobased products from agro-wastes. **Season 4 – The fruitful pathways** by David Bolzonella (INNOVEN) and Annamaria Celli (UNIBO) explained the main routes that NoAW considered; a mix of biotechnological and chemical approaches to obtain its targeted biobased products. **Season 5 – The prospective wealth** by Jan Broeze (DLO-FBR) gave insight about business aspects of valorisation of agricultural wastes. Examples of limiting factors for small market volumes were presented, such as legislation, availability, packaging market e.g. PHBV or PHBV composites.

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Season 6 – Going round and round in circles by Stig Irving Olsen and Daniel Rossi explained the need for a shift to the circular economy, recent developments inside and outside of the EU and the societal impacts.

Season 7 - Map to the promised land by Julien Voogt introduced the method that was used to quantify NoAW's economic and ecological benefits.

On the first day, **two moderated discussions** helped to exchange views on biomaterials and the evaluation of their environmental and societal benefits.

More than half of the participants indicated that they would accept to pay more for biobased products if they have real environmental benefits, but the participants agreed that it is difficult to compare fossil and biobased materials. The comparisons should consider the negative externalities related to the environment and the society. Besides, the quantification of the impact of the plastic leakage (microplastics) is not taken into consideration in comparisons as a result of lack of knowledge.

It was agreed that the companies are interested in new technologies but even the "innovator" companies would need some incentives and technical support for the implementation of new developments.

According to the estimation of the participants, the transition to the circular economy needs a long time. On the other hand, NoAW experts noted that it is more important to ask "How long the transition must be taken?". This will also depend on the environmental issues and regulatory deadlines.

During the discussion, it was highlighted that NoAW biomaterials have a great advantage as they are not competitive with the food product and also can close the loop for the agriculture, replace the conventional plastic that currently used on fields for specific activities.

On the second day, the invited speakers kept their inspiring presentations related to biogas and biomaterials.

"Biogas and anaerobic waste treatment – Current status and strategies for a circular bio-based economy" by Jean-Philippe Steyer (INRAE) gave a good overview of the anaerobic digestion process and how it can be improved. Anaerobic digestion needs to be considered as a flexible, renewable energy production method. He also explained what the long-term future could be. Potential visions such as source separation and dedicated bio-electrosynthesis and biorefinery of biomethane were introduced.

On the second day, the open discussions provided an opportunity to exchange knowledge and interest about biogas and biomaterials with cutting edge experts.

The future of the anaerobic digestion was discussed. The foreseen trends are the followings:

- Anaerobic digestion will be more flexible because the waste can vary a lot.

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	• The trend might be to go lower in terms of volume and to be adapted to small scale production. • More attention will be given to digestate, that is also an important product of biogas plant and can be used as a fertilizer. • The whole process should be modular and be combined dynamically. • Also, more sensors more tools for optimisation are expected. The decrease of feed-in tariffs also can have a negative effect, and put economic stress on biogas plant. But it needs to be pointed out that anaerobic digestion in the biogas plants is not only a way of producing of green energy but also can store biomass, a way to treat waste and can make value-added products from waste. **"How to fight pollution from plastics in the agricultural and food sector?"** by Valérie Guillard, (University of Montpellier) introduced the trends and problems of plastic use. She also emphasized by showing several examples of the need for reducing and reusing packaging and finding biodegradable alternatives to plastic. The differences between the biodegradable, compostable and biosourced materials were explained. The key messages were discussed on how to fight pollution from plastics in the agricultural and food sector. The NoAW experts explained the factors that can affect the speed of degradation. For example, the presence of lignin and polyphenols can retard biodegradation but fibres absorb water, which can accelerate that process. This suggests that the composition have a significant effect on biodegradation. Definition of natural polymers also was discussed. In the view of NoAW expert, the PHA can be fully synthetized by natural organisms, therefore it can be considered as a natural polymer. On the other hand, EU legislation does not consider this as natural polymer. This suggests there is a lot to do on common terminology, the definition of "natural polymers". Consumer behaviour was brought into question. Insights show that communication needs to be improved, differences among home compostability, biodegradability and industrial compostability have to be clearly explained. Biomaterials can be degraded in anaerobic conditions; especially small pieces of PHA but the of the presence of plasticizer or other materials/additives can cause complication or increase the retention time. NoAW experts confirmed that optical sorting is feasible for PHA, so they will not disturb the recycling plants.

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	The B2B Session provided an opportunity to check business opportunities and get new network partners in the “Biomaterial” or the “Bioenergy” breakout room. 7 stakeholders made pitch presentations in the B2B session, that foster collaboration between NoAW partners and the participants. The event brought publicity to the NoAW platforms, 2 participants joined to KESP and the NoAW B2B LinkedIn group grow to 54 people. During these days 26 different materials, such as publications, videos and interesting links were shared in chat for creating awareness.

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3 Introduction

The final stakeholder webinar aimed to gather scientists and end-users for the discussion of the NoAW results. This event combined short NoAW presentations and major project outcomes with industry round table discussions that provided an opportunity to network with peers.

Our objective was to provide the delegates improved knowledge on agro-waste management and highlight the potential of innovative tools to develop pathways from agricultural residues to new products. The event put the main focus on the presentation and the discussion of conversion and biorefinery technologies developed in the NoAW project. Besides, the open discussion and the B2B session provides an opportunity to network with other like-minded professionals.

Due to the COVID-19 crisis both the timing and the way to deliver this event has been changed compared to the schedule foreseen in the contract. Originally, a live event was planned, but considering travel and meeting restrictions in combination with infection risks and company policies the event was organized as a webinar.

4 Methods

Organisation

An organisation committee was established at the beginning of 2020 for the preparation activities by the participation of INRAE, ECOZEPT, ITRI and CBHU. The members of this group met regularly to discuss steps need to be taken and emerging organizational issues about this event.

The project partners were regularly updated on the monthly skype meetings about the progress of the organisation and actions that are required from their sides

The development of the stakeholder event followed several steps and close cooperation of the project partners.

The preparation of the final stakeholder event started at the beginning of 2020, before the COVID -19 pandemic. By the end of June, it became clear that due to the pandemic situation and the associated risks the event needs to be shifted to a later date and need to be changed to from face-to-face event to an online webinar. To foster the participation of the Chinese stakeholders, it was decided to split the webinar into 2 morning session; this new schedule overcame the time difference and enabled to join stakeholders from the East Asian regions. It was decided to use ZOOM platform, where the event was hosted by CBHU.

To ensure the safe and smooth conduction/management/ arrangements of the webinar dedicated test days were provided for the speakers and the participants to test their computer and audio connection. This also provided an opportunity for the organizer to introduce the general rules of the participation in the webinar to the participants.

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Program

The focus and potential modules of the event were discussed on several skype meetings, where the whole consortium participated and could share their opinion and suggestions.

The program (Annex 1) of the event was divided into 4 sessions.

Session 1 “The Seven Seasons of the NoAW Story” gave an insight into a broad range of topics and innovative solutions.

In Session 2 the focus was on the anaerobic digestion. The topic was introduced by the keynote presentation “Biogas and anaerobic waste treatment – Current status and strategies for a circular bio-based economy” by Jean-Philippe Steyer (INRAE – LBE) and was followed by an open discussion.

The Session 3 started with the keynote presentation of Valérie Guillard (UM) “How to fight pollution from plastics in the agricultural and food sector?” and highlighted the importance of preventing plastic pollution in agricultural and food sector.

Session 4 (B2B session) provided an opportunity for the exchange of interest and to network with other like-minded professionals. According to the main themes of the webinar 2 breakout rooms – BIOENERGY and BIOMATERIALS - were set up for the participants of the B2B session.

The event was recorded which provides an opportunity to watch the presentation for those, who missed the webinar.

Involving audience

Plenary sessions

In order to get feedback from the audience and increase interaction in different topics Sli.do, an interactive questionnaire tool was used. Sli.do aims to bring interactivity and to offer to the audience the opportunity to express their opinion even though they are shy.

The presenters provided the different questions (such as one-word learnings, single and multiple-choice questions) a few days in advance, which were programmed into the Sli.do

During the presentations, these questions were made available at the beginning of the speech on slido.com to the audience and the audience was invited to answer anonymously these questions.

The answer of the audience was presented to the speaker at the end of the speech under the format of a percentage of response for each possible answer which generated great discussions.

Chat

Participants were encouraged to post questions on chat. This surface was also used to share information about different topics and create awareness. (e.g: NoAW publication, videos, interesting links, NoAW best practice guidelines)

B2B session

In the B2B sessions, the participants were invited to give an introduction about their company, products, services in the format of a pitch presentation. To explore their interest and collect the topic that they

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would present a questionnaire was compiled. Based on the answers received they were assigned to the Biomaterial or Bioenergy breakout room and received a template for preparing their presentations.

To increase interaction between participants of the webinar, a specific LinkedIn group was set up where they can get in touch with each other or the with the NoAW project partners.

NoAW B2B group: https://www.linkedin.com/groups/12492299/

Promotion of the event

Different methods and channels were used to promote the event.

Stakeholders were contacted via email, the “save the date” messages, invitations with the registration link were sent to different target groups.

- Special attention was paid to the NoAW Knowledge Exchange Stakeholder Platform members (KESP), the received information regularly about the program.
- The coordinators of 13th EU projects were invited, who already gave a presentation on NoAW monthly skype meetings.
- The coordinator of the AgroCycle project was also contacted
- The members of the European Collaboration of the National Food Technology Platforms also were informed about the event.
- All NoAW partners were asked by the coordinator to send out at least 1-5 personal invitations to their main industry partners.

Posts about the event were regularly shared on the NoAW homepage and the social media, LinkedIn, Twitter and. Graphics and specific hashtags were used to increase the hits by these posts.

The event was uploaded on the European Circular Economy Stakeholder Platform.

A presentation was prepared and uploaded on the SlideShare platform, which also had more than 1150 views.

An English press release was prepared and translated into 8 languages, which also helped the communication in specific countries. (Annex 2)

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Figure 1 Examples of tweets and graphics

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5 Results

5.1 Participants of the webinar

Altogether 293 people registered to the event of which 55 were project partners and 238 external stakeholders. 45 countries were represented from all over the world.

The profile of the registered external stakeholders the following: 34% R&D, 16% Industry, 14% Agricultural activity, 14% Other (e.g education, academia), 10% Consulting, 9% governmental organizations, 3% NGO.

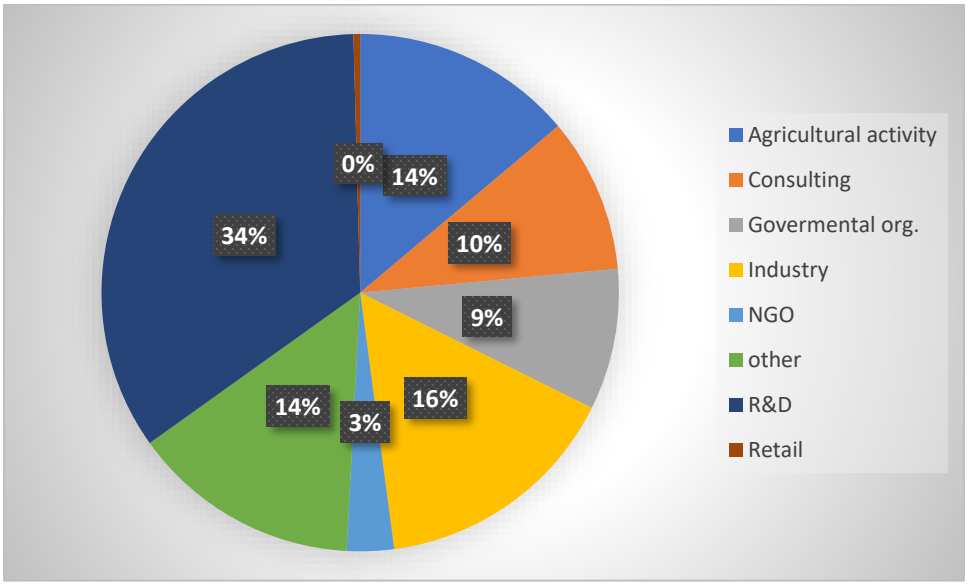

Figure 2 Profile of the external participants

The registration for the different session provided an opportunity for “mix and match”; they could select sessions according to their interest and availability.

On the first day of the event, 196 participants join the webinar. The second day attracted 162 participants.

List of participants is not attached because of GDPR rules, but they are kept at CBHU with appropriate personal data protection measures.

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5.2 Minutes of the webinar – Day 1 (2021.01.18)

The webinar started with a warm-up Sli.do question. Most of the participants indicated that they joined to learn, work and collaborate.

Figure 3: Why did you come to the NoAW event today?

Welcome by Nathalie Gontard (INRAE)

The participants were welcomed by Nathalie Gontard (INRA), the Coordinator of NoAW project. She highlighted issues and challenges related to agro-waste management and the possible solutions that NoAW can offer to answer these challenges.

YouTube link of introductory video: https://youtu.be/VGnYsMhsWuU

Season 1 - Preparing the future - Environmental and societal long-term challenges targeted by the NoAW project

Anne Verniquet (SOFIES) gave a good overview of critical challenges of the linear and fossil-based system, such as climate change, plastic leakages, resources exhaustion.

The presentation explored the question if the unavoidable agro-waste be a leverage point to boost the bioeconomy. Although agro-waste sets challenges, as it is not easily accessible or not easy to transport, it provides a high potential to optimise and valorise agro-waste thanks to the bioeconomy. Anne highlighted that the valorisation of agro-wastes requires time and coordinated supportive framework condition and explained the business and technical challenges to overcome though, such as:

- Price competitiveness compared to fossil-based products
- Securing the sourcing of variable agro-waste flows
- Optimising logistic in and out

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- Producing products with the quality and properties required
- Developing circular Business Models implying a systemic change

YouTube link of Season 1: https://youtu.be/KqUaK066r3g

Season 2 – People's needs - Stakeholders: citizens, the industry: what they need to respond to the sustainability challenges

Burkhard Schaer (Ecozept) explained that NoAW put the focus on identifying the needs of stakeholders and gave an overview of their interest.

Stakeholders' / consumers' / citizens' needs centre around usability/functionality/safety (e.g. of packaging from biomaterial), accessibility (the price of biomaterial or bioenergy), disposability (e.g. of used biomaterial), certainty about sustainability advantages / environmental benefit (of biomaterial and bioenergy).

Industry's (e. g. manufacturers & users of biobased packaging) interest are raw material / trustable supply, technology compliance, cradle to cradle visibility, market knowledge and sector knowledge, investment and business partners, investment security.

Besides, stakeholders from agricultural sectors highlighted that closable loops for nutrients and carbon are also important aspects.

Burkhard emphasized that different NoAW platforms are providing a great opportunity for networking, such as:

- www.noaw2020.eu : free and open access
- Knowledge Exchange Stakeholder Platform (free registration)
- LinkedIn NoAW B2B: https://www.linkedin.com/groups/12492299/ (free registration)

YouTube link of Season 2: https://youtu.be/NDMfMHW9low

Season 3 – The products in a basket - Answering the needs through NoAW products

David Bolzonella (INNOVEN) and Annamaria Celli (UNIBO) presented the new opportunities for producing high added value biobased products from agro-wastes.

This presentation covered the result of the NoAW project on the potential to produce a naturally biodegradable bio-polyester (PHA), PHA/winery waste biocomposites and new bio-based monomers, resins and plastics. Plastics with new functionalities were also introduced: polyphenols, extracted from wine pomace and plant extracts can be also used as additives for polymer coating.

The promising cascaded AD and pyrolysis approach was also explained that can improve biomass used, energy recovery and soil preservation.

YouTube link of Season 3: https://youtu.be/bEGqJcEYzBI

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Moderated discussion on the applicability of the products and stakeholders needs - The questions collected during the breaks were answered by the experts. Discussion was moderated by Andras Sebok (CBHU) with the participation of the presenters.

This session started with the discussion of Sli.do questions. The results of the polls were presented to the participants.

Most of the respondents (75%) rated high the opportunity to generate more regional added-value and sustainable products via the bioeconomy (Figure 4).

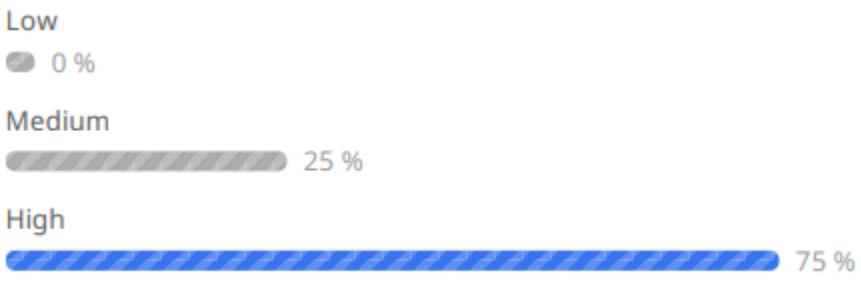

Figure 4 How would you rate the opportunity to generate more regional added-value and sustainable products via the bioeconomy

46% of the participants expressed their interest to join some of NoAW platforms or discussion group. This presentation brought publicity to the NoAW platforms, 2 participants joined to KESP and the NoAW B2B LinkedIn group grow to 54 people (Figure 5).

Figure 5 Are you interested in joining one of the NoAW platforms / discussion group

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56% of the participants agree that they would accept to pay more for biobased products if they have real environmental benefits. One-third of them answered that it would depend on the costs. Only 14% stated that they would pay more. It suggests that we need to work a lot to reduce the costs of biopolymers (Figure 6).

Figure 6 Would you accept to pay more for a biobased product compared to its fossil equivalent

The NoAW experts highlighted that it is an important question: “What is the cost of environmental benefit, how we evaluate it”. This is the key question but difficult to answer. They emphasized that fair comparison, the fair competition of fossil and biobased materials should be achieved.

During the discussion, it was brought up if prediction/scenarios are available for comparison of biobased materials, but the participants agreed that it is difficult to compare fossil and biobased materials. The fossil materials and their technologies were developed and improved for a long time, while biobased industries are relatively new and they still have to improve synthesis and formulation, which takes time.

It was agreed that it would be a mistake to compare them in a short term with fossil-based materials and the negative externalities related to the environment and the society should be considered. Besides, the quantification of the impact of the plastic leakage (microplastics) is not taken into consideration in comparisons because of lack of knowledge. This is a complex issue, the long-term effects are not known. Microplastics are studied in different research programs that will bridge the gaps in knowledge.

During the discussions, NoAW experts informed the participants about the characteristic of NoAW products e.g. if they do not contain additives, except few amount of nucleating agents. There were questions about specific characteristics of biobased, biodegradable materials but unfortunately “super material” which is transparent, heat resistant and flexible and can be used in blowing machines, still does not exist.

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Season 4 – The fruitful pathways – from agricultural residues to NoAW products: conversion and biorefinery technologies

David Bolzonella (INNOVEN) and Annamaria Celli (UNIBO) explained the main routes that NoAW considered; a mix of biotechnological and chemical approaches to obtain its targeted biobased products:

- Biological processes deriving from modifications of the anaerobic digestion (a proven technology), such as on valorising recalcitrant fractions and streams, an advanced pilot plant of 2-steps anaerobic digestion and two-step process for biohythane production,
- Cascading bio-tech and/or chemical-physical processes to convert agro-waste to bio-molecules, bio-materials, bio-fertilizers.

YouTube link of Season 4: https://youtu.be/BTRxIaSmODg

Season 5 – The prospective wealth - For which markets and businesses?

Jan Broeze (BLO-FBR) gave insight into business aspects of valorisation of agricultural wastes. Examples of limiting factors for small market volumes were presented, such as legislation, availability, packaging market e.g. PHBV or PHBV composites, mixed views on market development; does the product fulfil the needs?

Common examples of applications of PHB and some interesting markets and applications were shown.

Jan explained that almost 85% of the experts report that green premium prices for bio-based plastics exist: 10 to 50%. The main field of application of PHA-plastics is the manufacture of bulk products, packaging and 3D printing

YouTube link of Season 5: https://youtu.be/H12s7ShIR9g

Season 6 – Going round and round in circles - NoAW's answers to circular economy principles

Stig Irving Olsen (DTU) and Daniel Rossi (GCIA) explained the need for a shift to the circular economy, recent developments inside and outside of the EU and societal impacts.

Changes and lessons learnt in the last 15 years were presented with relevance to socio-economic innovation strategies and policies. It was highlighted that NoAW essentially fulfils the principles of the circular economy

- By making products fully made from renewable resources
- Manufacturing them in environmentally friendly ways
- Closing the loop with products that will not stay in the environment for thousands of years (fully biodegradable biocomposites)

YouTube link of Season 6: https://youtu.be/5c2QM3TFnw0

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Season 7 – Map to the promised land- How to quantify NoAW's economic and ecological benefits

Julien Voogt (DLO-FBR) introduced the method that was used to quantify NoAW's economic and ecological benefits. Two cases were demonstrated, combined technology-solvent selection for polyphenol extraction from red wine pomace and anaerobic digestion and crude PHB production from agricultural waste.

It was concluded that combining TEA & LCA with MCDA makes it possible to compare both economic and environmental aspects. This approach can contribute to the development of agricultural waste management strategies:

- Assess the economic and environmental performance
- Decision support
- Knowledge transfer between science and business

YouTube link of Season 7: https://youtu.be/ERkSEly2NJs

Moderated discussion on the applicability of the technologies and market opportunities- Discussion was moderated by Andras Sebok (CBHU) with the participation of the presenters.

This session started with the discussion of Sli.do questions. The results of the polls were presented to the participants.

Most of the participants indicated that they are interested in new technologies but would need some incentives and technical support for implementation. NoAW experts discussed that it is not a barrier as even the "innovator" companies need some help in the implementation (Figure 7).

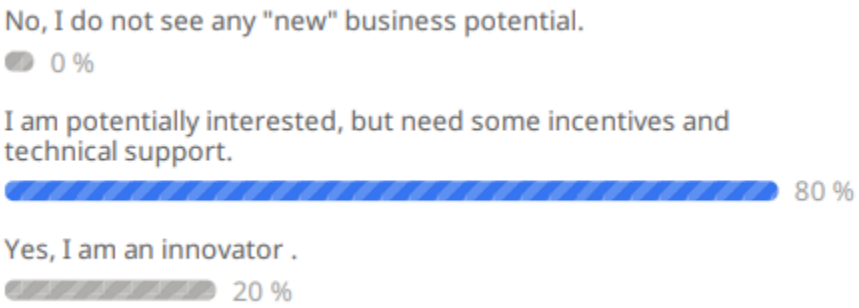

Figure 7 Would you be interested in introducing new processes in your daily business?

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According to the estimation of the respondents, the transition to the circular economy needs more time, 46% of them foreseen that it will last until 2050, 22% could not give an estimation. The pessimistic participants selected 2100 (14%) or never (14%) as an answer (Figure 8).

It was noted by the NoAW experts, that it is more important to ask “How long the transition must be taken?”. This will also depend on the environmental issues and regulatory deadlines.

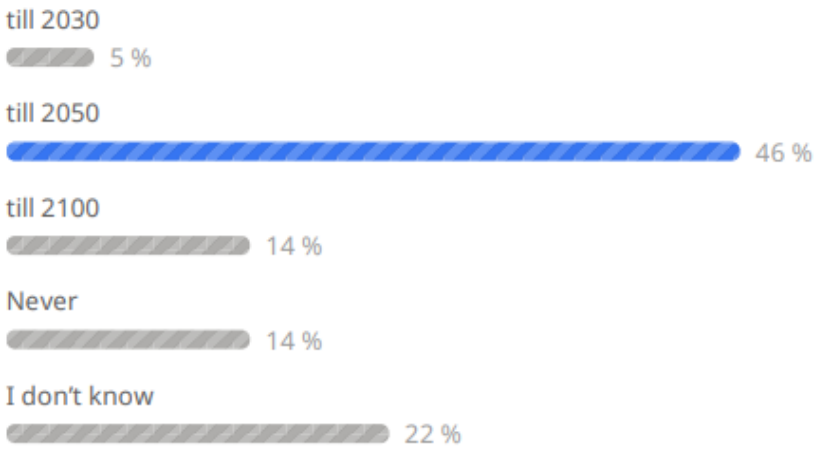

Figure 8 How long will be the transition to a circular no fossil economy?

To the question, if the transition to a circular economy would only depend on oil price, 67% answered as a “clear no”, while other (22%) thinks that it will depend on it just under specific circumstances (Figure 9).

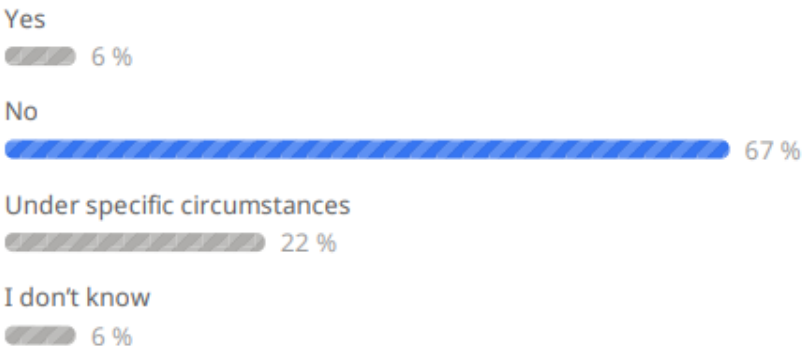

Figure 9 Will transition to a circular economy only depend on the oil price?

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We asked the participants if they have heard about multi-criteria assessment. Most of them (81%) was aware of this tool (Figure 10). As we asked this question after the presentation, we could measure that their knowledge has increased about this topic (Figure 11).

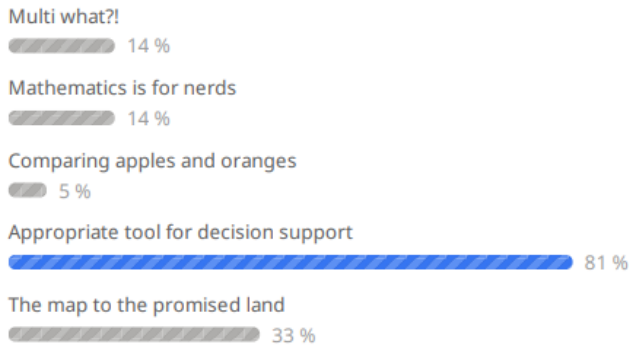

Figure 10 My opinion on Multi-Criteria Decision Analysis

Figure 11 Now after the presentation: My opinion on Multi-Criteria Decision Analysis

As a final question, opportunities for biodegradable materials were discussed. It was highlighted that NoAW biomaterials have a great advantage as they are not competitive with the food product and also can close the loop for the agriculture, replace the conventional plastic that currently used on fields for specific activities.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

5.3 Minutes of the webinar – Day 2. (2021.01.19.)

The second day started with a warm-up question: “How to fight pollution from plastics in the agricultural and food sector?”

The word cloud based on the participants’ answers show that the use of plastics must be decreased, and we need to consider the application of bioplastics (Figure 2).

Figure 12 How to fight pollution from plastics in the agricultural and food sector?

SESSION 2 BIOENERGY

“Biogas and anaerobic waste treatment – Current status and strategies for a circular bio-based economy”, Keynote speaker: Jean-Philippe Steyer, INRAE – LBE (FR)

Jean-Philippe Steyer gave a good overview of the anaerobic digestion process and how it can be improved. He emphasized that importance of good substrate characterization as it is leads to good process understanding. The developments of the NoAW project and the pilot plant for H2 + CH4 production were presented.

Anaerobic digestion needs to be considered as flexible, renewable energy production. He also explained what the long-term future could be. Potential visions such as source separation and dedicated bio-electrosynthesis and biorefinery of biomethane were introduced.

YouTube link of the presentation: https://youtu.be/fjQQn19nDPI

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 688338

Open discussion with David Bolzonella (Innoven, IT), Eric Trably (INRAE, FR), Katrin Kayser (IBBK, DE), & Maria Loizidou (NTUA, GR) & other stakeholders

The presentation triggered several questions. The participants were interested in increasing methane yield. Types of substrate/feedstocks and cost related to transportation, improved dewatering of digestate also raised questions. The presenter gave examples to handle surplus energy eg. filling gas reservoirs with H2, then add it to the process later to improve CH_4 or using the energy for storing it in the form of water energy in mountain regions.

A specific question about the models for use of whey or integration of AD solution into the urban cycle of water and organic wastes also arrived and was discussed.

The feedback collected on Sli.do also confirms that the participants see anaerobic digestion is the potential solution for tomorrow to handle the agro-wastes.

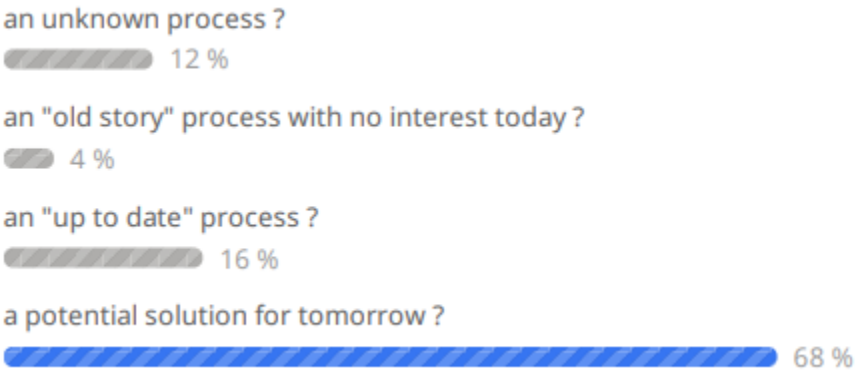

Figure 13 For you, anaerobic digestion is:

The future of the anaerobic digestion was discussed. The foreseen trends are the followings:

- Anaerobic digestion will be more flexible because the waste can vary a lot.
- The trend might be to go lower in terms of volume and adapted to small scale production.
- More attention will be given to digestate, which is also an important product of biogas plant and can be used as a fertilizer.
- The whole process should be modular and be combined dynamically.
- Also, more sensors more tools for optimisation are expected.

The decrease of feed-in tariffs also can have a negative effect, economic stress on biogas plant. But we do not have to forget that anaerobic digestion in biogas plants is not only a type of green energy but also can store biomass, a way to treat waste and can make value-added products from waste.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

SESSION 2 BIOPLASTICS

"How to fight pollution from plastics in the agricultural and food sector?"

Keynote speaker: Valérie Guillard, University of Montpellier (FR) - Glopack coordinator

This session started a Sli.do question to get the participants involved. The participants were asked to judge the photo below. Most of them correctly identified that we are talking about the application of plastics in intensive farming.

Figure 14 What does this picture represent?

Valérie Guillard introduced the trends and problems of plastic use. She also emphasized by showing several examples of the need for reducing and reusing packaging and finding biodegradable alternatives to plastic. The differences between the biodegradable, compostable and biosourced materials were explained.

The key messages on how to fight pollution from plastics in the agricultural and food sector were discussed. The take-home messages were:

- Do not focus only on recycling!
- Come back to simple and practical actions that everybody could apply
  - Food loose sales, packaging-free
  - Limit usage of plastic only when its usage benefit is well recognised when we cannot do without
- Give priority to
  - Material really biodegradable in natural conditions (wood, cellulose, …)
  - Materials that may be "close loop" recycled (glass and metal)
- Promote reuse of packaging

YouTube link of the presentation: https://youtu.be/oZpxgPhIgyU

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

Open discussion with Nathalie Gontard (INRAE, FR), Mauro Majone (University of Rome, IT), Maria Reis (IBET, PT), Bill Jang (ITRI, TW), Burkhard Schaer (Ecozept, DE), Anne Verniquet, (SOFIES, CH) & other stakeholders

Mauro Majone in this section presented how different organic waste streams of urban origin can be combined into a common valorization chain. He also presented the results on obtaining bio-based products (such as PHA) from the organic waste of urban origin, with a higher economic value than compost and biogas.

Many questions arrived from the audience that generated great discussion. Questions were asked about the biodegradability of compostable plastics and the speed of degrading different composites. NoAW experts explained the factors that can affect the speed of degradation. For example, the presence of lignin and polyphenols can retard biodegradation but fibres absorb water, which can accelerate that process. This suggests that the composition have a significant effect on biodegradation.

Definition of natural polymers also was brought up. In the view of NoAW experts, the PHA can be fully synthetized by natural organisms, therefore it can be considered as a natural polymer. On the other hand, EU legislation does not consider this as natural polymer. This suggests there is a lot to do on common terminology, the definition of “natural polymers”.

Consumer behaviour was brought into questions. Insights show that communication needs to be improved, differences among home compostability, biodegradability and industrial compostability have to be clearly explained.

It was also raised if biomaterials can be degraded in anaerobic conditions; answer arrived that laboratory essays show a potential possibility but there is a lack of standard thresholds. Small pieces of PHA easily degrade but in the presence of plasticizers or other materials can cause complication or increase the retention time.

Sorting of biodegradable plastics also was brought into question. NoAW experts confirmed that optical sorting is feasible for PHA, so they will not disturb the recycling plants.

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SESSION 4: B2B

B2B session, Burkhard Schaer (Ecozept, DE), Bill Jang (ITRI, TW)

The objective of the B2B session is to create new relationships among stakeholders and business deciders, encourage sharing of ideas, information and cooperation.

This session started in the main room and the aim of this session was explained by Burkhard Schaer. After the introduction, the participants could choose which breakout room they would join.

In the different breakout rooms the stakeholders, who send their presentation in advance had an opportunity to explain their expertise and products and collaboration they are looking for.

Breakout room #1: Bioenergy (Moderator: Burkhard Schaer, David Bolzonella & Katrin Kayser)

11:25 Edward Someus (3R-BioPhosphate Ltd., Hungary)

11:30 Alfonso Navarro Carvallo (EliteSDGs Business Consulting, Peru and Chile)

Breakout room #2: Biomaterials (Moderator: Bill Jang & Nathalie Gontard)

11:25 Chih Yuan Ma (WIN TIME TECHNOLOGY CORP., Taiwan)

11:30 Paul Lo (EASYPACK ENTERPRISE CO. LTD, Taiwan)

11:35 Muriel Józó (Budapest University of Technology and Economics, Hungary)

11:40 Maj Munch Andersen (University of Copenhagen, Denmark)

11:45 Anne Hastrup (Teknologisk Institut, Denmark)

Round table discussion followed the presentations in both rooms.

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5.4 List of publications, interesting links that were shared with the audience

Interesting information, links, publications were shared in the chat during the webinar. This aimed attract their attention to NoAW research results, publications and topics that they find useful.

- Publication: NoAW position paper on the research challenge vision regarding the management of agricultural wastein a circular based bio-economy https://www.tandfonline.com/doi/full/10.1080/10643389.2018.1471957
- Video: https://www.youtube.com/watch?v=VGnYsMhsWuU
- Publication: A new circular business model typology for creating value from agro-waste - ScienceDirect. https://www.sciencedirect.com/science/article/pii/S0048969720305751?via%3Dihub
- Website, Join the NoaW B2B: https://www.linkedin.com/groups/12492299/
- Publication: Maximizing Environmental Impact Savings Potential through Innovative Biorefinery Alternatives: An Application of the TM-LCA Framework for Regional Scale Impact Assessment https://www.mdpi.com/2071-1050/11/14/3836/htm
- Publication: Maximizing Environmental Impact Savings Potential through Innovative Biorefinery Alternatives: An Application of the TM-LCA Framework for Regional Scale Impact Assessment https://www.mdpi.com/2071-1050/11/14/3836
- Publication: Assessing New Biotechnologies by Combining TEA and TM-LCA for an Efficient Use of Biomass Resources https://www.mdpi.com/2071-1050/12/9/3676
- Video: A glimpse into the work going on at DTU under the NoAW project – utilizing quantitative sustainability assessment to ensure the environmental performance of emerging bio-product technologies. https://youtu.be/b_pb3uqE8pI
- Guideline: NoAW Best Practice Guidelines: https://noaw2020.eu/noaw-best-practice-guidelines/
- Website: https://snow-leopard-projects.com/
- Website: https://www.livingcircular.veolia.com/en/industry/first-recycling-plant-europe-solar-panels
- Website: https://www.greenmatch.co.uk/blog/2017/10/the-opportunities-of-solar-panel-recycling
- Website: Vision of the European biogas association for sustainable development of rural areas https://www.europeanbiogas.eu/wp-content/uploads/2020/12/EBA-Long-term-vision-for-rural-areas.pdf
- Publication: European Biogas Association: other policy paper are available on EBA website for instance on the importance of soil quality and how biogas can contribute to a depolluted environment https://www.europeanbiogas.eu/circular-economy-and-waste-legislation/
- Publication: Trends in food waste valorization for the production of chemicals, materials and fuels: Case study South and Southeast Asia https://www.sciencedirect.com/science/article/abs/pii/S096085241730980X?via%3Dihub
- Publication from NoAW partners in China: Optimization of ultrasound-microwave assisted acid extraction of pectin from potato pulp by response surface methodology and its characterization https://www.sciencedirect.com/science/article/abs/pii/S0308814619305047?via%3Dihub
- Market potential of NoAW waste based and biodegradable mulch film and further activities for its actual market launch https://ecozept.com/fr/telechargements/#1443arrow

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- Publication “Comparison of Dry Versus Wet Milling to Improve Bioethanol or Methane Recovery from Solid Anaerobic Digestate“ Bioengineering, 2019, 6, 80; https://doi.org/10.3390/bioengineering6030080
- Publication: A Multiproduct Biorefinery Approach for the Production of Hydrogen, Methane and Volatile Fatty Acids from Agricultural Waste. https://link.springer.com/article/10.1007/s12649-020-01023-3
- GLOPACK position paper on the benefits of home compostable biodegradable materials for a sustainable food chain: https://glopack2020.eu/glopack-position-papers/
- Homepage: www.glopack2020.eu
- Home page: https://glopack2020.eu/glopackfaq/
- Publication Eco-conversion of two winery lignocellulosic wastes into fillers for biocomposites: Vine Shoots and Wine Pomaces» Polymers, 2020, 12, 1530; doi:10.3390/polym12071530
- Publication “From winery waste to bioactive compounds and new polymeric biocomposites: A contribution to the circular economy concept” Journal of Advanced Research, 2020, 24, 1-11. https://doi.org/10.1016/j.jare.2020.02.015
- Website: https://glopack2020.eu/what-is-the-stakeholders-platform/
- Article: Article of ITRI about “Catalysing the circular economy” in IMPACT! Click on this link and go to page 6! https://impact.pub/Impact2020-Octoberdigitaledition/

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6 Conclusions

This free online webinar– gave the participants the opportunity to discuss current and upcoming innovations in agro-waste management. Experts across continents, from Europe and China, shared their knowledge and experiences on successful innovative solutions, emerging tools, methods and technologies, developed in NoAW project and beyond.

On the first day of the event, 196 participants join the webinar. The second day attracted 162 participants. 45 countries were represented from all over the world. The profile of the registered external stakeholders the following: 34% R&D, 16% Industry, 14% Agricultural activity, 14% Other (e.g education, academia), 10% Consulting, 9% governmental organizations, 3% NGO.

The first day of the NoAW final stakeholder webinar was centred around the achievements of the NoAW project. This session was called as The Seven Seasons of the NoAW project, that drove the audience through on the aims, challenges and the main results.

On the first day, two moderated discussions helped to exchange views on biomaterials and the evaluation of their environmental and societal benefits.

More than half of the participants indicated that they would accept to pay more for biobased products if they have real environmental benefits, but the participants agreed that it is difficult to compare fossil and biobased materials. The comparisons should consider the negative externalities related to the environment and society. Besides, the quantification of the impact of the plastic leakage (microplastics) is not taken into consideration in comparisons as a result of lack of knowledge.

It was agreed that the companies are interested in new technologies but even the “innovator” companies would need some incentives and technical support for the implementation of new developments.

According to the estimation of the participants, the transition to the circular economy needs a long time. On the other hand, NoAW experts noted that it is more important to ask “How long the transition must be taken?”. This will also depend on the environmental issues and regulatory deadlines.

During the discussion, it was highlighted that NoAW biomaterials have a great advantage as they are not competitive with the food product and also can close the loop for the agriculture, replace the conventional plastic that currently used on fields for specific activities.

On the second day of the NoAW final stakeholder webinar, the invited speakers kept their inspiring presentations related to biogas and biomaterials.

“Biogas and anaerobic waste treatment – Current status and strategies for a circular bio-based economy” by Jean-Philippe Steyer (INRAE) gave a good overview of the anaerobic digestion process and how it can be improved. Anaerobic digestion needs to be considered as a flexible, renewable energy production method. He also explained what the long-term future could be. Potential visions such as source separation and dedicated bio-electrosynthesis and biorefinery of biomethane were introduced.

In the open discussion, the future of the anaerobic digestion was discussed. The foreseen trends are the followings:

- Anaerobic digestion will be more flexible because the waste can vary a lot.
- The trend might be to go lower in terms of volume and to be adapted to small scale production.
- More attention will be given to digestate, that is also an important product of biogas plant and can be used as a fertilizer.

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- The whole process should be modular and be combined dynamically.
- Also, more sensors more tools for optimisation are expected.

The decrease of feed-in tariffs also can have a negative effect, and put economic stress on biogas plant. But it needs to be pointed out that anaerobic digestion in the biogas plants is not only a way of producing of green energy but also can store biomass, a way to treat waste and can make value-added products from waste.

"How to fight pollution from plastics in the agricultural and food sector?" by Valérie Guillard, (University of Montpellier) introduced the trends and problems of plastic use. She also emphasized by showing several examples of the need for reducing and reusing packaging and finding biodegradable alternatives to plastic. The difference between the biodegradable, compostable and biosourced materials was explained. The key messages were discussed on how to fight pollution from plastics in the agricultural and food sector.

During the discussion, the NoAW experts explained the factors that can affect the speed of degradation. For example, the presence of lignin and polyphenols can retard biodegradation but fibres absorb water, which can accelerate that process. This suggests that the composition have a significant effect on biodegradation.

In the view of NoAW ex-pert, the PHA can be fully synthetized by natural organisms, therefore it can be considered as a natural polymer. On the other hand, EU legislation does not consider this as natural polymer. This suggests there is a lot to do on common terminology, the definition of "natural polymers".

Insights show that communication needs to be improved, differences among home compostability, biodegradability and industrial compostability have to be clearly explained.

Biomaterials can be degraded in anaerobic conditions; especially small pieces of PHA but the of the presence of plasticizer or other materials/additives can cause complication or increase the retention time. NoAW experts confirmed that optical sorting is feasible for PHA, so they will not disturb the recycling plants.

The *B2B Session* provided an opportunity to check business opportunities and get new network partners in the "Biomaterial" or the "Bioenergy" breakout room.

7 stakeholders made pitch presentations in the B2B session, that foster collaboration between NoAW partners and the participants.

The event brought publicity to the NoAW platforms, 2 participants joined to KESP and the NoAW B2B LinkedIn group grow to 54 people.

During these days 26 different materials, such as publications, videos and interesting links were shared in chat for creating awareness.

This event provided an improved knowledge of agro-waste management in a broad range of topics, an introduction of the innovative tools to develop pathways from agricultural residues to NoAW products and professional insights into quantification economic and ecological benefits through case studied of NoAW project.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

7 Partners involved in the work

Organisation of the event:

INRAE, ECOZEPT, ITRI, CBHU

Hosting the event:

CBHU

Presentations:

INRAE, SOFIES, ECOZEPT, INNOVEN, UNIBO, DLO-FBR, GCIA, DTU, UM

Moderation of discussions:

CBHU, IBBK, UNIBO, NTUA, IBET, ITRI, ECOZEPT, SOFIES, UNIROMA, INRAE

Edited by:

CBHU

Acknowledgements:

We gratefully thank all authors and partner contributing to this event.

The No-Agricultural Waste (NoAW) project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 688338. We express our gratitude for founding our work.

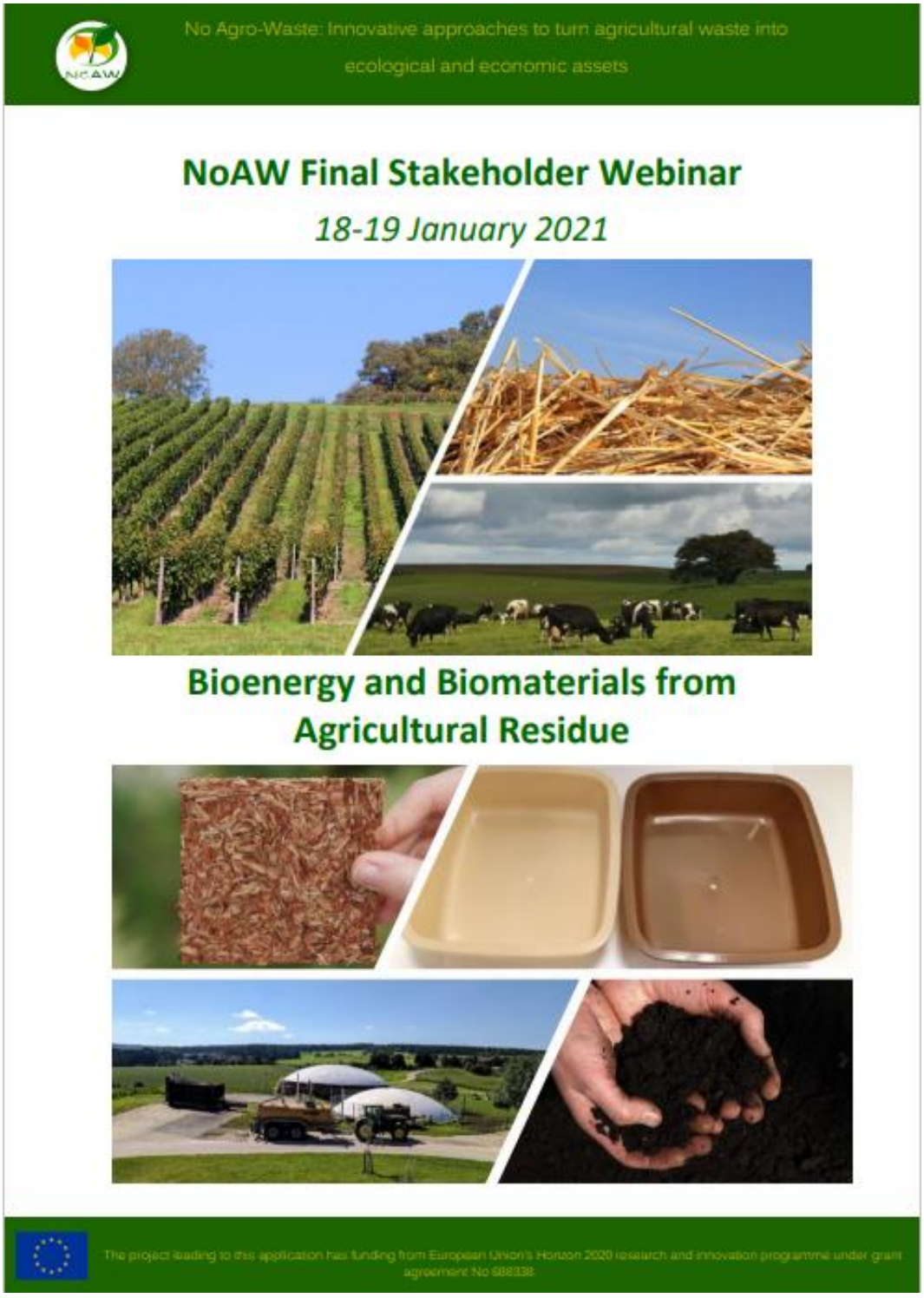
8 FAIR Data management

Not applicable, because no data sets were used in this deliverable. The generic presentations are an Annex to this deliverable.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

9 Annexes

9.1 Flyer of the event



No Agro-Waste: Innovative approaches to turn agricultural waste into ecological and economic assets

NoAW Final Stakeholder Webinar

Bioenergy and Biomaterials from Agricultural Residue

This free online event – organized in two half-day sessions – will give participants the opportunity to discuss current and upcoming innovations in agro-waste management. Experts across continents, from Europe and China will share their knowledge and experiences on successful innovative solutions, emerging tools, methods and technologies, developed in NoAW project and beyond.

Attending the NoAW final online event will provide delegates with:

- an improved knowledge of agro-waste management in a broad range of topics
- an introduction of the innovative tools to develop pathway from agricultural residues to NoAW products: conversion and biorefinery technologies
- professional insight into quantification economic and ecological benefits through case studied of NoAW project
- an opportunity to network with other like-minded professionals.

Program of the Stakeholder Webinar

18th of January 2021

The **Seven Seasons of the NoAW Story** will give an insight into broad range of topics and innovative solutions.

19th of January 2021

You can follow the inspiring presentations of the keynote speakers about use of **bioenergy in agricultural and food sector** and join to the moderated discussion.

Importance of **preventing plastic pollution in agricultural and food sector** will be presented followed by a moderated discussion.

Match-making for future: You will have the opportunity to network with peers during the B2B session.

The project leading to this application has funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 688338.

No Agro-Waste: Innovative approaches to turn agricultural waste into ecological and economic assets

NoAW Final Stakeholder Webinar

Time	DAY 1: 18 January 2021
9:00 – 9:10	Introduction to the Stakeholder Event Nathalie Gontard, INRAE (FR) – Coordinator
	SESSION 1: THE SEVEN SEASONS OF THE NoAW STORY
9:10 – 9:20	**Season 1 – Preparing the future** - Environmental and societal long-term challenges targeted by the NoAW project By Anne Verniquet, SOFIES (CH) / S. I. Olsen, Technical University of Denmark (DK) / A. Ekman, RISE Research Institutes of Sweden (SE) / J. Broeze, Stichting Wageningen Research (NL)
9:20 – 9:30	**Season 2 – People's needs** - Stakeholders: citizens, the industry: what they need to respond to the sustainability challenges By Burkhard Schaer, Ecozept (DE) / Bill Jang, Industrial Technology Research Institute (TW) / A. Sebok, Campden BRI (HU) / T. Mu, Institute of Food Science and Technology, CAAS (CN) / P. Schiessl, Schiesslhof GbR (DE)
9:30 – 10:00	**Season 3 – The products in a basket** - Answering the needs through NoAW products By David Bolzonella, Innoven (IT) / Annamaria Celli, University of Bologna (IT) / H. Angellier-Coussy, University of Montpellier (FR) / E. Trably, INRAE (FR) / G. David, University of Montpellier (FR) / H. Fulcrand, INRAE (FR) / C. Lin, Hong Kong City Univ. (HK) / P. Bisquert, INRAE (FR) / P. Buche, INRAE (FR) / M. Nenkovic Riznic, Institute of Architecture and Urban & Spatial Planning of Serbia (RS)
10:00 – 10:10	*Break with collection of questions*
10:10 – 10:50	**Moderated discussion on the applicability of the products and stakeholders needs** - The questions collected during the breaks will be answered by the experts. Discussion is moderated by Andras Sebok (CBHU) with the participation of the presenters.
10:50 – 11:10	**Season 4 – The fruitful pathways** – from agricultural residues to NoAW products: conversion and biorefinery technologies By David Bolzonella, Innoven (IT) / Annamaria Celli, University of Bologna (IT) / M. Majone, University of Rome la Sapienza (IT) / M. Reis, Instituto de Biologia Experimental e Tecnológica (PT) / C. Lin, Hong Kong City Univ. (HK)
11:10– 11:20	**Season 5 – The prospective wealth** - For which markets and businesses? By Jan Broeze, Stichting Wageningen Research (NL) / A. Verniquet, SOFIES (CH) / L. Spinnarke, B. Schaer & D. Gider, Ecozept, (DE) / R. Gohier, INRAE (FR) / F. Fort, INRAE (FR) / V. Lempereur, Institut Français du Vin (FR) / N. Urban, INOSUD (FR)
11:20 – 11:30	**Season 6 – Going round and round in circles** - NoAW's answers to circular economy principles By Stig Irving Olsen, Technical University of Denmark (DK)/ Daniel Rossi, General Confederation of Italian Agriculture (IT), G. Croxatto, Technical University of Denmark (DK)
11:30 – 11:40	**Season 7 – Map to the promised land**- How to quantify NoAW's economic and ecological benefits By Julien Voogt, J. Broeze, Stichting Wageningen Research (NL) / J. Sohn, G. Croxatto, S. I. Olsen (DTU)Technical University of Denmark (DK)
11:40 – 11:50	*Break with collection of questions*
11:50 – 12:30	**Moderated discussion on the applicability of the technologies and market opportunities**- The questions collected during the breaks will be answered by the experts. Discussion is moderated by Andras Sebok (CBHU) with the participation of the presenters.

No Agro-Waste: Innovative approaches to turn agricultural waste into ecological and economic assets

Time	DAY 2: 19 January 2021
	SESSION 2: (BIO)ENERGY
9:00 – 9:20	"Biogas and anaerobic waste treatment – Current status and strategies for a circular bio-based economy" **Keynote speaker: Jean-Philippe Steyer, INRAE – LBE (FR)**
9:20 – 10:00	**Open discussion with David Bolzonella (Innoven, IT), Eric Trably (INRAE, FR), Katrin Kayser (IBBK, DE), & Maria Loizidou (NTUA, GR) & other stakeholders**
10:00 – 10:10	*Break*
	SESSION 3: (BIO)PLASTICS
10:10 – 10:30	"How to fight pollution from plastics in the agricultural and food sector?" **Keynote speaker: Valérie Guillard, University of Montpellier (FR) - Glopack coordinator**
10:30– 11:10	Open discussion with **Nathalie Gontard (INRAE, FR), Mauro Majone (University of Rome, IT), Maria Reis (IBET, PT), Bill Jang (ITRI, TW), Burkhard Schaer (Ecozept, DE), Anne Verniquet, (SOFIES, CH) & other stakeholders**
11:10 – 11:20	*Break*
	SESSION 4: B2B
11:20 -13:00	Objective of the B2B session is to create new relationships among stakeholders and business deciders, encourage sharing of ideas, information and cooperation. **Burkhard Schaer (Ecozept, DE), Bill Jang (ITRI, TW)**

Date: 18th and 19th of January 2021 (organized in 2 half-day sessions)

Place: Online event on Zoom Platform

Registration: Please register until 12th of January 2021 CLICK HERE

Contacts: Tünde Kuti (Campden BRI Hungary): t.kuti@campdenkht.com

The project leading to this application has funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 688338.

9.2 Press release

Press Release 25/11/2020

Free webinar and stakeholder event: bioenergy and biomaterials from agricultural residues

Create more value out of agriculture by-products and waste: the NoAW research project https://noaw2020.eu has found innovative break-through solutions for up-cycling unavoidable and continuously generated by-products from agriculture. Thanks to the project, straw residues, manure and winery wastes are transformed into eco-friendly bioplastics, biofertilizer and biogas. Thus, the circular economy principle brings sustainable solutions for agro-waste valorisation - reducing conventional plastics, mitigating global warming and protecting natural resources.

The project is funded by the Horizon 2020 Framework Program of the European Union.

Value beyond anaerobic digestion of agricultural waste

The boosting action of innovative pre- and post-treatment of the agro-wastes extends the scope of the types of feedstocks that can be used in biogas facilities. The innovative two-step anaerobic digestion produces biogas, biohydrogen, biomethane, biofertilizers and high added-value polyhydroxy-alkanoate (PHA) biopolymers in the same plant.

Next generation of eco-friendly plastics in the agri-food sector

Using innovative processing routes, the project converted straw, vinery and other vegetal wastes into innovative biodegradable composite materials (combining for example PHAs and lignocellulosic fibres) to be used as sustainable food and non-food packaging and many other applications like in agriculture and horticulture, to replace some petrochemical single-use polluting plastics.

Tailoring sustainable regional business and marketing concepts

With an integrative and strategic approach, the project suggests combining techno-economic and environmental assets and derives relevant, applicable regional business concepts for agro-technical clusters of various sizes and applications.

Connecting people and business to drive innovation

The NoAW project is coming to a successful conclusion on the Final Stakeholder Webinar on 18-19 January 2021. This free online event – comprising two half-day sessions – will provide participants the opportunity to discuss current and upcoming innovations in agro-waste management and the creation of biosourced materials and energy. Top-experts across continents, from Europe and China, will share their knowledge and experiences on successful innovative solutions, emerging tools, methods and technologies developed in the NoAW project and beyond. Market-leading companies are present: a unique opportunity for networking and matchmaking.

Register now for free: https://noaw2020.eu/event/noaw-final-stakeholder-event/

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

END

Note to editors:

1. NoAW is the acronym for "No Agro-Waste: Innovative approaches to turn agricultural waste into ecological and economic assets". It is a European Horizon 2020 research and development project, running from 2016 to 2021, coordinated by INRAE (France). The consortium involves 32 partners from universities, public research organizations and other institutions from a dozen countries, including participants form China, Taiwan and Hong Kong. Keywords: agroecology, bioplastics, biomaterials, anaerobic digestion, biofuels, biogas, biomethane, biohydrogen, biofertilizers, bioproducts, circular economy, vinery, organic waste
2. Further information on NoAW project: http://noaw2020.eu
   INRAE (Coordinator): Prof. Nathalie Gontard, e-mail: nathalie.gontard@inrae.fr
   Campden BRI Hungary: dr. András Sebők, e-mail: a.sebok@campdenkht.com
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