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Project Overview

BIOBRIDGES is a 28 months action aiming at boosting the marketability of bio-based products - BBPs by establishing close cooperation and partnership between bio-based Industries - BBI, brand owners and consumers' representatives. The ultimate goal is to stimulate and support the active engagement of and interaction among all stakeholders (including local communities and local authorities) and improve market acceptance of BBPs.

BIOBRIDGES will design and implement replicable methodologies, procedures and good practices supporting multistakeholders' interaction, leading to new cross-sector partnerships. Main activities will be:

- Identify the cooperation challenges among consumers, brand owners and BBI
- Create a sustainable multi-stakeholder community involving consumer representatives, BBI and brand owners from different bio-based economy clusters and stimulate dialogue and cooperation
- Following a co-creation approach, increase consumers' and brand owners' awareness, confidence and trust on the benefits of BBPs compared to the fossil-based counterparts,
- Support the establishment of at least 2 new cross-cutting interconnections in bio-based economy clusters and define replicable procedures and good practices leading to the establishment of new cross-sector partnerships and business opportunities
- Stimulate the multi-stakeholder discussion toward pre-and co-normative research, new standardisation/labelling and emerging co-creation models (B2B and B2C).

At the end of the project, at least 2 new cross-sector interconnections in bio-based economy cluster will be established, while the foundations for the creation of new ones based on the arguments, best practices and recommendations deriving from the project will be formed.

The BIOBRIDGES consortium merges a variety of complementary expertise, aiming to build a consistent multi-actor approach integrating 9 partners already involve in other projects like BIOWAYS, BIOVoices and BIOSTEP.

Consortium	Estonia	Civitta Eesti As	Italy	FVA Sas Di Louis Ferrini & C
	Greece	Q-PLAN INTERNATIONAL ADVISORS PC	Germany	Ecologic Institut gemeinnützige GmbH
	Italy	Agenzia Per La Promozione Della Ricerca Europea	Croatia	Particula group d.o.o
	Slovakia	Pedal Consulting Sro	Spain	Asociacion Espanola De Bioempresas

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Partners

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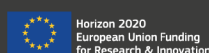


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1. EXECUTIVE SUMMARY

Biobridges is a 28-months Coordination and Support Action (CSA) project aiming to boost the marketability of bio-based products, establishing a close collaboration among bio-based industries (BBIs), brand owners and consumers' representatives. Its principal goal is to support and stimulate the cooperation among the stakeholders above-mentioned and to stimulate the acceptance of bio-based products (BBPs).

Working on the consumer's side, thanks to this document Biobridges designed guidelines and recommendations for raising their awareness on bioeconomy and BBPs, in particular suggesting actions that could inform and address them towards more sustainable purchase choices.

This document and the actions proposed are based mainly on a survey – delivered from July to October 2020 – **that collected 1.014 replies from 39 countries, of which the large majority of them (84,3%) came from people not involved or working in the bioeconomy sector.** The results are also consolidated by the insights harvested during the 24 co-creation events organised by the Biobridges project from March 2019 and December 2020.

The survey – designed without the use of technical jargon and made available in nine languages (Croatian, English, Estonian, German, Greek, Italian, Portuguese, Slovak and Spanish) in order to allow a wider participation – aimed to assess the consumers' awareness on the bioeconomy and BBPs, the perceived positive and negative impacts of BBPs, the consumers' purchase habits (their willing to pay and the motivation to buy BBPs) and the sectors in which they would be in favour or not to buy such products, the usefulness of labels in guiding consumers' choices and the information that they would find there, and – finally – what are the best actors and channels to inform consumers about BBPs. The expressed preferences on such topics were mainly analysed and presented (chapter §4) according to the nationality, gender, age, education, work and typology of stakeholders of the respondents. Given this, in each paragraph of the chapter §4, the reader will find some *highlights* on the main findings on that specific topics.

The actions and recommendations proposed by this document (chapter §5) are aimed to address and face issues clustered in the following topics:

Misunderstood of the terminology

- Bioeconomy & bio-based products are terms unknown or less known by the large public; these terms are also frequently confused with other meanings (e.g., organic or biodegradable products);
- Circular economy and sustainability are topics more known by the large public, also thanks to the current public debate on specific topics (e.g., the climate change); meanwhile, *bioeconomy* and *bio-based* are terms that are often confused with these or not known at all;

Lower awareness of bioeconomy and BBPs in youngsters and elders

- Young people are open to sustainability but generally confuse bioeconomy and circular economy;

- Young people are not aware of bioeconomy and BBPs, but they presume they can recognize them correctly when they shop
- Older people are not as familiar with the bioeconomy and BBPs

Low perception of possible positive economic and social impacts generated by the bioeconomy

- People are more interested in sustainability and environmental impacts generated by the BBPs;
- Even if strongly promoted by policy makers, potential economic impacts are not perceived by consumers (for instance, the possibility to create new jobs, the development of new technologies, etc.).

Request for more informative labels

- Labels can definitively guide consumers to choose BBPs instead of fossil-based ones;
- Information on BBPs – that could be provided also through labels – are more effective in motivating consumers choices rather than a reduction of the products price;
- Consumers ask to be informed through labels regarding the raw materials used for creating the BBP and the products' end-of-life.

Motivations for increasing the purchase of BBPs

- Price is an obstacle, but the large majority of respondents are available to pay more (in particular up to 5%) and there are actions motivating more consumers than a price reduction (e.g., providing more information on BBPs);
- Environmental issues and sustainability aspects are pushing people towards buying BBPs (and more sustainable products in general) and this is particularly true for young people;

Sectors

- Consumers are generally open to buy BBPs in all sectors rather than to exclude some of them; however, they prefer to buy the ones that are not consume durable goods;
- More known sectors and products by consumers - such as packaging, single-use products, food, textile - are the ones in which people would buy BBPs (also because they confuse BBPs with products perceived as more sustainable);
- Consumers are sceptical of buying BBPs in some sectors and they would not buy them (for instance, pharma & nutraceutical), but consumers are probably already making a large use of BBPs without knowing it;

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2. INTRODUCTION

About Biobridges

Biobridges is a 28-months Coordination and Support Action (CSA) project aiming to boost the marketability of bio-based products, establishing a close collaboration among bio-based industries (BBIs), brand owners and consumers' representatives.

The principal goal is to support and stimulate the cooperation among the stakeholders above-mentioned and to stimulate the acceptance of bio-based products (BBPs).

The main activities of the projects are:

- Identification and cooperation challenges among consumers, brand owners and BBIs;
- Creation of a sustainability multi - stakeholders community;
- Increase consumers' and brand owners' awareness, confidence and trust on the benefits of BBPs compared to the fossil – based counterparts;
- Support the establishment of at least 2 new cross-sector interconnections in bio-based economy cluster and define procedures and good practices to ease them;
- Stimulate the multi stakeholder discussion towards pre- and co-normative research, new standardisation/labelling and emerging co-creation models (B2B and B2C).

Scope of the document

This document is part of the Work Package 6 “*Lessons learned and recommendations*” of the Biobridges project. It is the outcome of the work carried out under *T6.2 Biobridges Action Plan for raising consumers' awareness of sustainability and opportunities of bio-based products (BBPs)*.

The main objective of this document is to provide guidelines and recommendations for raising consumers' awareness on bio-based products, in particular promoting more sustainable purchase choices. Initially, the document would have been designed mainly on the results emerging from the 24 co-creation events, organised by the Biobridges project from March 2019 and December 2020.

However, **the involvement of consumers was lower than expected**, despite the efforts to engage consumers and/or their representatives, the level of participation of this group in the co-creation events didn't reach a good representation level. Overall, out of 1118 participants who attended these workshops, 358 were researchers, 347 industry representatives, 114 civil society stakeholders, 81 policy makers and 108 attendees were not categorised. Some of the reasons for the low representation could be that the workshops had technical focus and consumers didn't identify themselves as such. Therefore, in order to overcome this drawback, Biobridges partners decided to launch a survey with the specific goal of measuring the consumers' awareness and collect their opinions on bio-based products and on the bioeconomy sector in general. In particular, Biobridges partners conducted focused engagement campaigns mainly targeting people not working or involved in the sector and from different age groups such as younger and older people that would not have participated in the co-creation events and which opinions and ideas could not have been taken into account. Given this, Biobridges partners put into the field some specific actions and communication activities to achieve the objective. More details on the promotion and engagement campaigns are described in §2.1.3.

The survey – conducted from July to October 2020 – successfully achieved the fixed goal: **1.014 replies from 39 countries** were collected, and **the large majority of them (84,3%) came from people not involved in the sector** or that do not know if they are. The actions implemented, alongside the motivations that guided them, are described in this chapter.

Document structure

After an introduction to explain the activities implemented by partners for collecting consumers' opinions and purchasing habits, as well as to measure their awareness about the topic, the document presents the main results coming from the survey. Before presenting the analysis, a chapter dedicated to the methodology will help the reader to better understand the considerations presented in this document. Survey's data has been analysed grouping the questions of the investigation under common topics (bioeconomy awareness, BBPs awareness, BBPs impacts, BBPs purchase, sectors and purchase motivation, labels, information on BBPs). Results observed under each topic will offer the possibility to make some considerations and comments, integrated by insights collected during the co-creation events and other results from previous research and consumer's engagement activities. Finally, the document gives a summary of the main results and presents recommendations and actions to be taken and by whom.

As highlighted by the *D7.9 Biobridges Exploitation and Sustainability Plan*, the raw data collected in the survey are freely available and can be used by everybody who would like to integrate and complement their own research and analysis with resources collected by the Biobridges' project.

Last, but not least in order to disseminate the main results of the survey and to attract interest towards the full report and the raw data, the project created an infographic presenting the results of the survey in a nutshell. The infographic – showed in the Annex 6.1 – will be available on the website and promoted in social media.

2.1. The context

2.1.1. Changing the approach

During the first months of the project, thanks to more than 60 interviews to different stakeholders, Biobridges' partners built the [value chain collaboration challenges model](#), a map of all existing barriers among brands, bio-based industry and consumers. Based on this, 24co-creation events were organised aiming to involve all actors in the definition of possible solutions and actions to be taken to solve the challenges previously identified, including the ones to boost consumers' awareness of BBPs and to stimulate them to more sustainable purchase choices.

Given this, partners designed the co-creation events agenda and interactive sessions including challenges related to these topics. Moreover, consumers' and civil society representatives were invited to take part in the discussion and were encouraged to provide their points of view. Despite the efforts made by Biobridges partners, there was a low participation of this group in the co-creation events. This could be caused by several factors: overlap with other duties or events, impossibility to participate due to the limited staff size, lack of specific and thematic knowledge on the topics covered in the events, low interest in the topics, or some participants

may have not identified themselves as “consumers” but instead assumed their professional role when participating in the events, etc.

In addition, Biobridges’ partners also targeted the general public, through the participation in fairs and events with a wide presence of the large public (e.g., Maker Faire, Researchers’ Night, Science is wonderful, Sustainable Week, EU Green week, Planetiers, etc.), and promoting the co-creation events also among citizens through social media. The participation with booths in the selected fairs, succeeded in collecting useful insights, for instance through the “Bioeconomy wall” (set-up in collaboration with the BIOVOICES project in the context of the Maker Faire 2018) where people had the opportunity to express their ideas and preferences about BBPs. In particular, such events provided the opportunity to harvest the people’s opinion with a low level of awareness of the bioeconomy, that represent the largest audience within the civil society (as will be shown also by the survey results).

On the other hand, difficulties were faced to involve the same target group during the co-creation events. Indeed, the civil society representatives participating there were – in general – more aware of the bioeconomy, already conducting more sustainable purchase choices and preferring – when possible – BBPs to fossil-based products. For these reasons, taking into account only their opinions would have biased the actions proposed in this document, since the “voice” of all others member of the “civil society” category (in particular the ones not completely aware of BBPs or them not already working in the sector) would have not been taken in a proper consideration.

For this reason, partners decided to design a survey: not only to increase the numbers of contribution to analyse, but, in particular, to include the opinions of a relevant portion of consumers that otherwise would not have been taken into account.

2.1.2. Target groups of the survey



Figure 1 - Educational cards powered by the Biovoices project and used in the survey

A survey was selected by Biobridges partners as the best option to collect a large number of contributions from **two identified target groups**: the **civil society** and **people not belonging to the “bioeconomy community”** (meaning with this that they are not working directly in the sector, nor as a node of the value chain nor as an actor of the supporting environment, e.g., policy makers).

Even if the survey would have addressed mainly people not working in the bioeconomy sector, in any case they had to be enabled to participate consciously, also in case of a low knowledge on the topic. Moreover, Biobridges partners had the possibility to use the survey as a mean to inform and increase consumers’ awareness on bioeconomy and on BBPs. For these reasons, and thanks to the

collaboration with the Biovoices project, the survey included two cards¹ – one on what the bioeconomy is and one on what a BBP is – and a text with examples avoiding technical jargon to better explain the main topics investigated. The Biovoices cards were translated in the nine languages of the survey. Moreover, a link to the [BIOart Gallery](#) was used aiming at increase people curiosity to discover more about BBPs that can be created starting from different feedstocks.

Moreover, Biobridges partners were conscious about the need to avoid possible bias related to the audience of repliers. In particular, many efforts were spent in order to **cover adequately all age groups**, as well as **different European geographical areas**.

Regarding the age group, the risk was to not cover properly the one related to elders, also due to the online format of the survey that could have represent a digital barrier for them. As showed in §3, the older group (>65 years) is indeed the less represented, followed by the teenager one; however, if considered jointly with the one containing people from 55 to 64 years, it reaches a good coverage (16,1% of total respondents). In normal, the Biobridges promotional campaigns performed on social networks could have been integrated by on-site campaigns during fairs and conferences, but they were not allowed due to the restrictions related with the COVID-19 pandemic.

Regarding the geographical coverage, first of all, partners decided to design the survey in English and to translate it in other eight languages (Croatian, Estonian, German, Greek, Italian, Portuguese, Slovak and Spanish), corresponding to the partners' national languages. The purpose of this action was to overcome the linguistic barrier by collecting replies also from people who cannot understand English and live in countries different from the partners countries. Even if a wide number of replies were collected in the Mediterranean area (reflecting the project consortium composition), the survey succeeded in covering other European areas and countries (with a small participation from Non-EU Member States). Then, the English version helped to guarantee a substantial participation from countries different from the partners (e.g., the Netherlands, fifth country per replies collected).

Finally, considering also the spreading of the COVID-19 in early 2020, a survey set up with an online format was considered extremely suitable to face the consequences of the pandemic situations and, in particular, the impossibility to meet and exchange opinions with people during onsite events (even if, as already explained, this represented a barrier for older people). Moreover, the extension of the Biobridges project gave partners the right time frame to conduct the whole process properly, from the concept to the analysis of results. Then, partners put into the field specific actions to ensure a wide spread of the survey among the identified target, in terms of format (e.g., its translation in 9 different languages) and communication activities (e.g., direct emailing, dedicated paid campaigns on social networks).

2.1.3. Survey promotion

In order to reach the identified targets, Biobridges partners identified specific communication approaches and actions.

¹ Cards were developed by the Biovoices project – also in collaboration with other projects or the BBI JU – during an online communication campaign on social networks. All educational cards are grouped and available in a [Facebook album](#).

First of all, partners leveraged from the collaboration with other H2020 projects and entities, that were asked to support the promotion of the survey among their channels. For instance, the Biovoices project sent a specific mailing to people registered in its database; the European Bioeconomy Network, and [ILSI Europe](#), promoted it on its social networks, as well as other entities did.

Moreover, the Bioheroes recruited by the project under Task 3.4 were actively engaged in this task. Indeed, they received a specific communication by Biobridges project in which they were asked to contribute to the survey's promotion. The same happened with the members of the Advisory Board.

In addition, the survey was promoted also by partners through their channels.

A dedicated campaign was conducted using social media with sponsored campaigns with segmented targets in line with the ones addressed by the survey. The campaigns were conducted in each partner's country, using images and messages in their own language, more specifically:

In August 2020, 16 posts (7 on Twitter and 9 on Facebook) were promoted with a traffic campaign targeting, in local language, general audience in: Germany, Greece, Croatia, Italy, Portugal, Slovakia, Spain and UK; while in October 2020 6 posts (3 on Twitter and 3 on Facebook) were promoted with a traffic campaign in: Germany, Italy, Portugal, Spain, UK.

Facebook was used as main channel since the survey promoted was targeting the general public and more specifically, individuals. With such a target Facebook can be considered as the best channel to be used since Twitter is more suitable for targeting organisations/ companies while LinkedIn for targeting professionals.

An overview of the campaigns is provided in the table below.

Date	Social media	Link	Type of campaign	Link Clicks	Engagements	Segmentation
03.08.20	Twitter	LINK	Traffic Campaign	221	649	Germany - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	157	565	Croatia - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	225	745	Greece - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	228	904	Spain - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	125	684	Portugal - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	106	573	Italy - General Audience
03.08.20	Twitter	LINK	Traffic Campaign	82	447	UK - General Audience
04.08.20	Facebook	LINK	Traffic Campaign	187	203	Germany - General Audience

04.08.20	Facebook	LINK	Traffic Campaign	80	88	Estonia General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	184	195	Croatia General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	201	224	Greece General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	188	204	Spain - General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	194	208	Italy - General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	104	108	Slovakia General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	66	68	UK - General Audience	-
04.08.20	Facebook	LINK	Traffic Campaign	225	264	Portugal General Audience	-
22.10.20	Facebook	LINK	Traffic Campaign	30	32	Italy - General Audience	-
22.10.20	Facebook	LINK	Traffic Campaign	60	74	Portugal General Audience	-
22.10.20	Facebook	LINK	Traffic Campaign	13	13	Germany General Audience	-
22.10.20	Twitter	LINK	Traffic Campaign	21	85	UK - General Audience	-
22.10.20	Twitter	LINK	Traffic Campaign	24	115	Italy - General Audience	-
22.10.20	Twitter	LINK	Traffic Campaign	45	149	Spain - General Audience	-

Table 1 - Survey promotional campaign on social media

Furthermore, the project also invested efforts on reaching out and contacting consumers associations from the partners' countries and beyond, requesting them to fill in the survey, but also to support us with the dissemination of the survey among their members/networks of consumers. In order to attract their interest, we even informed them that they will have access to use the raw data after the survey. In total, the project reached to 6 consumer associations in Europe.

3. METHODOLOGY

This chapter provides relevant information and all elements to read and analyse correctly the data gathered in the Biobridges' survey. The comments in the next chapter and, in particular, the recommendations presented in §5 can be understood only with a clear view of the methodology used. First of all, the survey structure is presented (and an example of the online version is available for consultation in Annex 6.3). Moreover, in this chapter will be presented the key indicators (country, gender, age, education, work, stakeholder typology, involvement in the bioeconomy sector) used to analyse the questions of the survey (grouped in the sections *Assessing general awareness* and *Consumers' purchase habits*).

3.1. Survey structure

The survey was designed according to the challenges between consumers and other actors in the sector mapped at the beginning of the Biobridges project under task 2.1, as well as to the insights gathered during the 24 co-creation events.

The structure of the survey was designed to be easy to fill and to stimulate curiosity of potential respondents, in order to collect the maximum number of replies. In particular, partners put strong efforts in simplifying the way in which questions, topics and possible replies were presented: technical jargon was avoided or, when not possible, properly explained; examples and images were inserted to ease respondents' comprehension of the sector and topics investigated. Moreover, the numbers of questions presented were limited in order to require not more than 10 minutes for filling in the survey, so contrasting the possible desertion of respondents after a few questions. Finally, images and hyperlinks to external resources were inserted to make the survey more user-friendly and to stimulate the curiosity of respondents in discovering more about bioeconomy, BBPs, Biobridges and Biovoices projects.

The following table provides an overview of the survey questions, grouped in 3 sections, indicating their typology (multiple choice question, quiz, etc.) and the chapter in which results are discussed in this document. More details (e.g., the options presented to respondents in the quiz questions, all results and analysis conducted per each question, etc.) are available in the Annex 6.2.

Survey section	Question	Chapter	Question type
Assessing general awareness	1 - What is the bioeconomy?	§4.1	Quiz
	2 - How much are you aware of the bioeconomy		Rate
	3 - What is a bio-based product?	§4.2	Quiz
	4 - How aware are you of the bio-based products (BBPs)		Rate
Consumers' purchase habits	5 - When you shop, how easy is to find bio-based products (in shopping malls, online stores, etc.)?		Rate
	6 - In your opinion, BBPs could have a POSITIVE impact because they:	§4.3	Multiple choices
	7 - In your opinion, BBPs could have a NEGATIVE impact because they:		Multiple choices

	8 - What motivates you to buy BBPs?	§4.4	Multiple choices
	9 - Why would you NOT buy BBPs?		Multiple choices
	10 - How much more are you willing to pay for BBPs compared to the fossil-based ones?		Single choice
	11 - In which sector are you willing to buy BBPs?	§4.5	Multiple choices
	12 - In which sector are you NOT willing to buy BBPs?		Multiple choices
	13 - What could motivate you to buy BBPs?		Multiple choices
	14 - Would labels of bio-based product help you to choose bio-based products over fossil-based products?	§4.6	Single choice
	15 - What is the most important information that you would like to see on a BBP label?		Single choice
	16 - From whom would you like to receive more information about BBPs?	§4.7	Multiple choices
General information	Country	§3.2 ²	Blank space
	Gender		Single choice
	Age		
	Education		
	Work		
	What category do you belong to?		
	Are you working in the bioeconomy sector?		

Table 2 - Survey structure

The first section aimed to measure the awareness that respondents had of the bioeconomy sector and of the BBPs: such information helped also the analysis of the following questions, since the difference in the knowledge about the topic is associated to a different approach in purchase choices. Moreover, in this section, the survey provided to respondents the basic information on bioeconomy and BBPs needed to reply consciously to the next questions, as described in the previous paragraph.

The second section was built to assess the purchase habits of consumers and it covered various and different topics. The majority of the questions allowed participants to provide more than one reply (up to 3): on one hand, this approach succeed in making more evident the respondent's preferences; on the other one, due to technicalities (explained in §3.3.2) there were limitations in the analysis of data.

The final section aimed to collect general information used to analyse the data coming from each question. Given this, results of these questions are presented in the next paragraph and they were used as "indicators" for the analysis conducted in §4, as well as for the final recommendations.

3.2. Data treatment

After the closure of the survey, data coming from each linguistic version should have been translated and aggregated. Before this, **a quality control was performed in order to avoid any possible error and incongruence**: in particular, some manual corrections were

² Questions in the *General Information* section of the survey were used to analyse the data in each of the previous question, as explained in §3.

performed in the *Country* question, the only one in which people had to write their reply, in order to make sure that the State was indicated using its English name and a common format³.

After that, **data were treated differently if they were collected through a multiple choices question or not.**

For each question designed using the **multiple choices format** a table (containing the options in English) was prepared and data from other linguistic version of the survey aggregated. Such tables are grouped in a specific sheet in the excel file containing raw data.

All the other questions were treated using the same and following approach. Initially, all data from each version were aggregated in a unique file. Starting from this, and using an excel formula, contents of each cell were translated from the various languages to English. A final quality control certified that no errors were made, and all replies were correctly and accurately translated in the same language. Then, they were available in a specific sheet in the excel file containing raw data. Starting from this, a pivot table was generated and used to analyse the various questions with the indicators explained in §3.3.

As already mentioned, the excel file is openly available and reusable by whoever would like to enrich its own work with Biobridges dataset or to perform a new analysis starting from the raw data. Also, the graphs contained in Annex 6.2, generated starting from survey data, can be openly reused. However, in case of its utilisation, it is mandatory to cite the source (Biobridges project⁴) and to use them under the creative common framework.

³ Corrections were made in order to replace the name of a town with the State in which it is located, correct typos, translate the Country name from the national language to English, use a common format (e.g., United Kingdom instead of UK).

⁴ In doing this, external will be requested to mention the also the following sentence: *Biobridges project that received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 792236.*

3.3. Survey indicators

3.3.1. People working or not in the bioeconomy

As explained in the introduction, the main audience target of the survey was represented by consumers not belonging to the “bioeconomy community”. For this reason, a question – the last one – was dedicated to assessing if the respondents were working or not in the bioeconomy sector. As showed by the Figure 2, **the large majority of participants in the survey (81,4%, 825 respondents) declared that they were not working in the bioeconomy sector**: this number shows that partners succeeded in engaging external people and that survey results will not be biased by the opinions of them involved in the sector, that should have a higher awareness of the bioeconomy and a more conscious approach in their purchase habits of BBPs.

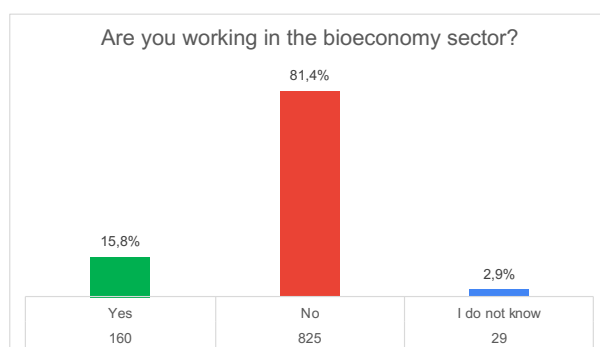


Figure 2 - Percentage and number of respondents working in the bioeconomy sector

The small number of people (2,9%) who does not know if they are working or not in the bioeconomy sector, was treated in the analysis jointly with the ones not working in the sector. Indeed, such reply could indicate a low level of awareness of the topic of the survey, or probably similar to the one owned by people not working in the sector.

Given this, **data were analysed considering replies provided by all and by only people not working in the bioeconomy sector.** The **data** coming from each question (except the ones designed in a multiple choices format, as explained in the next paragraph) **were analysed on the basis of the following indicators**:

- Country;
- Gender;
- Age;
- Education;
- Work;
- Stakeholder typology.

Then, data of each indicator are presented as:

- **All/Total**: it considers opinions expressed by all 1.014 people who participated in the survey;
- **Working in bioeconomy**: it presents only the opinions expressed by the 160 people that declared they are working in the bioeconomy sector, sometimes mentioned as people belonging to the “bioeconomy community”;
- **NOT working in bioeconomy**: it presents only the opinions expressed by the 854 people that declared they are not working in the bioeconomy sector or do not know it.

This distinction was introduced in order to assess possible bias in survey results. In each graph and table of §4 it will be indicated if the data take into account all respondents or only them not working in the bioeconomy (in any case, all graphs are available in Annex 6.2).

3.3.2. Analytical approach

As anticipated, unfortunately, it was not possible to analyse all questions with the same level of detail.

Indeed, **a detailed analysis was possible for questions designed using the quiz, rate and single reply formats** (please, see Table 2). For those, data are treated with information gathered thanks to questions of the third section of the survey: for instance, it is possible to know which gender is more aware about the bioeconomy, which age group is available to pay more for BBPs, which information on the label people from a specific nationality prefer to find, etc. Graphs and tables showing these information are available in Annex 6.2, meanwhile in §4 only a few of them will be used.

On the other hand, **questions designed using the multiple choices format do not present this detail due to technical limitations**. For those, graphs will show only the replies collected by each option: for instance, this means that it is not possible to know from which communication channel would be informed the various age groups, or the preferences for sectors in which to buy BBPs according to the education level, or the motivation to buy or not BBPs considering if the people are working or not in the bioeconomy sector. **However, using a rule of thumb, it would be possible to comment multiple choices questions considering the nationality of respondents.**

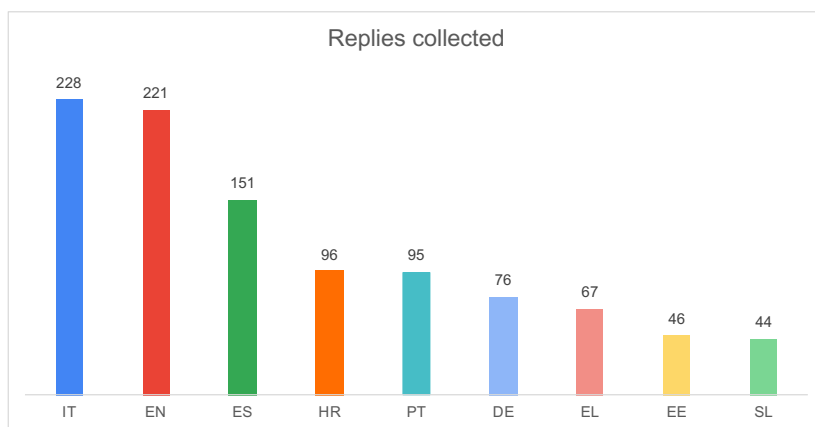


Figure 3 - Replies collected by each version of the survey

The **1.014 replies** collected by the survey could be referred to a specific country according to the various linguistic versions. Excluding the English one, that covered several countries (the Netherlands in particular), the other eight survey versions were participated mainly by people with the same nationality of the linguistic version, even if a small

number of respondents declared to have a different nationality. For this reason, **the linguistic version could be used as a rule of thumb to indicate the nationality of respondents (only) in the multiple choices questions**, so introducing another element to comment results coming from them. In any case, the use of the *rule of thumb* will be properly indicated.

3.3.3. Countries

Country	# Replies
Italy	230
Spain	157
Portugal	105
Croatia	93
The Netherlands	78
Germany	74
Greece	72
Estonia	51
Slovakia	42
United Kingdom	21
Hungary	16
France	13
Belgium	13
Austria	6
Czech Republic	6
Finland	4
Romania	3
Colombia	2
Canada	2
Brasil	2
United States of America	2
Ukraine	2
Serbia	2
Norway	2
Argentina	2
Sweden	1
Perú	1
Belarus	1
Russia	1
Australia	1
Armenia	1
Switzerland	1
Mexico	1
Tunisia	1
Slovenia	1
Indonesia	1
South Korea	1
New Zealand	1
Mauritius	1
TOTAL	1.014

Table 3 - List of replies collected per country

well as by people not working in the bioeconomy sector. This detail was elaborated only for the 14 countries with more than 10 replies, and the EU and Third Countries groups.

The survey was able to collect replies from **39 countries** (of which 19 EU Member States). Obviously, the translation of the survey eased the collection of replies in partners' country. However, the 5th one for number of replies is the Netherlands (78 replies): Dutch people participated mainly through the English version, that collected also replies by many other countries. Table 3 presents the number of answers collected per each country.

For the purposes of the analysis, the not-EU Member States will be considered under the label of the "**Third Countries**", constituted by 19 nations: Argentina, Armenia, Australia, Belarus, Brazil, Canada, Colombia, Indonesia, Mauritius, Mexico, New Zealand, Norway, Peru, Russia, Serbia, South Korea, Switzerland, Tunisia, U.S.A.

Having in mind its involvement in the European integration path, Serbia deserved to be considered with a different status, for instance under the label of the "Candidate Status". However, since only 2 replies were collected from Serbia and there were no other Candidate Countries, its data were grouped with the one of the Third Countries group.

When data are analysed per country, the reader will find the label "**EU**", that groups together all replies coming from the 19 EU Member States and it represent the European average.

On some occasions, data of countries are presented through graphs. In those cases, in order to ease the visualisation, only countries covered by **at least 10 replies** are considered (**14 countries in total, corresponding to the 95,2% of replies**): Italy, Spain, Portugal, Croatia, The Netherlands, Germany, Greece, Estonia, Slovakia, United Kingdom, Hungary, France, Belgium. They are presented jointly to the two additional groups of EU and Third Countries.

Also, in this case, country data were analysed considering replies collected by all respondents, as

Country	All	NOT working in bioeconomy	% of NOT working in bioeconomy
Belgium	13	4	30,8%
Croatia	93	88	94,6%
Estonia	51	49	96,1%
France	13	5	38,5%
Germany	74	61	82,4%
Greece	72	67	93,1%
Hungary	16	10	62,5%
Italy	230	188	81,7%
Portugal	105	97	92,4%
Slovakia	42	41	97,6%
Spain	157	128	81,5%
The Netherlands	78	74	94,9%
United Kingdom	21	17	81,0%
Third Countries	28	17	60,7%
EU	986	837	84,9%

Table 4 - % of people NOT working in bioeconomy in each country

respondents. A little percentage of the replies came from people that preferred not to declare their gender. As shown in Annex 6.2, each question was assessed taking into account these 3 options.

In each of them, it was registered a similar percentage of respondents not working in the bioeconomy sector (more than 80%): in particular, they are the 85,9% of females, 80,9% of males and 87,1% of whom preferred not to express the gender.

In particular, it is really important to consider what is the percentage of people not working in the bioeconomy in each country (detail presented by Table 4, below), since – in some cases – huge differences are observed in the data analysis in §4.

3.3.4. Gender

The survey registered a huge participation from females, almost the double of male

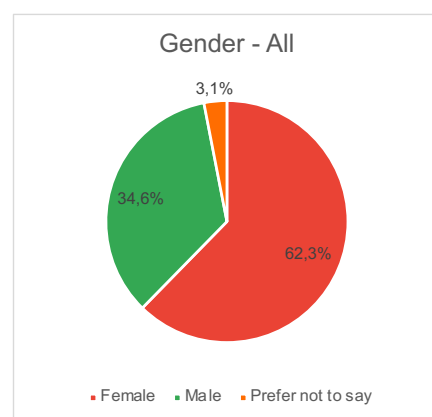


Figure 4 - % of respondents per gender (all replies)

3.3.5. Age

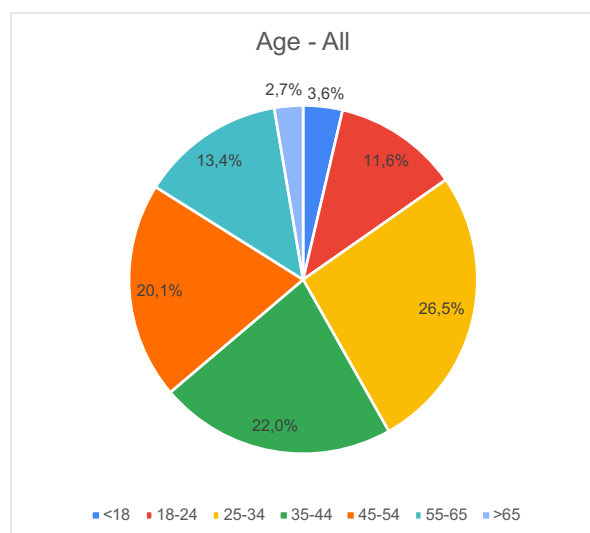
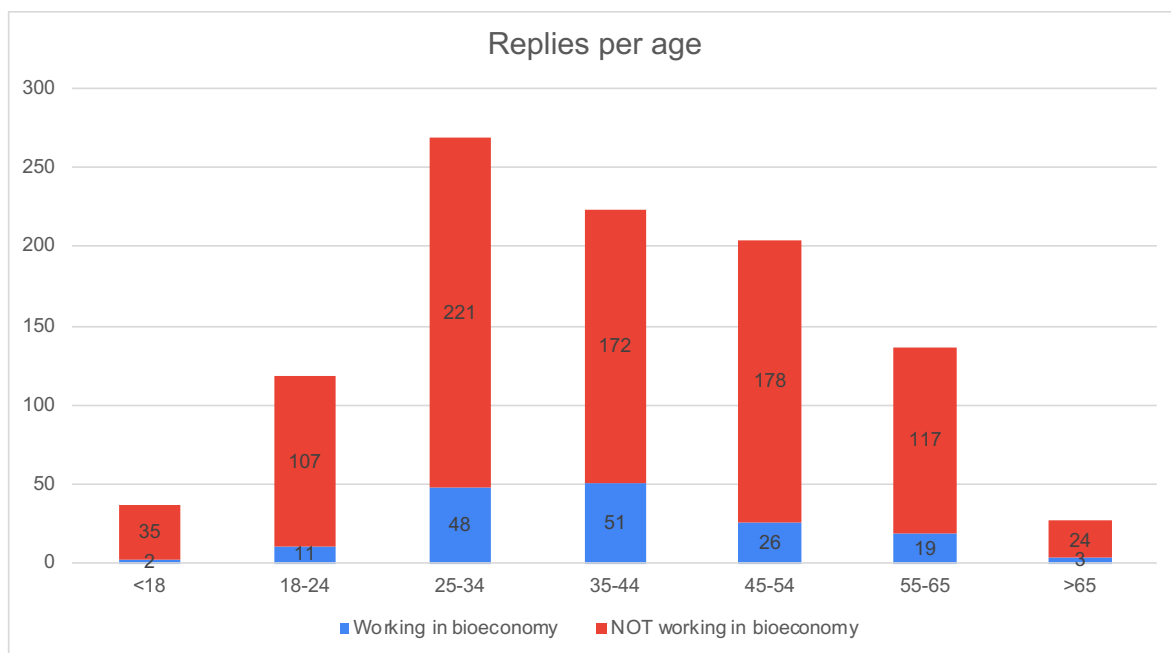


Figure 5 - % of respondents per age (all replies)

As explained in §2, partners planned specific communication campaigns and activities in order to involve in the survey compiling all age groups. As showed by Figure 5, the respondents that participated less are the elders (>65 years, 2,7%) and the youngest (<18 years, 3,6%). However, if these two age groups are considered jointly with the two closes to them – respectively, the 55-65 group and the 18-24 group – they acquire a fair share (16,1% for the elders, 15,2% for the youngest) and can be considered more relevant.

The other three age groups (25-34, 35-44 and 45-54) contains singularly more than the 20% of replies, with **the majority of respondents belonging to the 25-34 age group (26,5%)**.



As showed by Figure 6, **the age group with the highest percentage of people working in the bioeconomy sector is the 35-44 one (22,9%),** followed by 25-34 age group (17,8%).

In the other cases, the percentage of people not working in the bioeconomy sector is higher than the 86%, with the maximum value registered in the <18 group (94,6%) and in the 25-34 group (90,7%).

3.3.6. Education

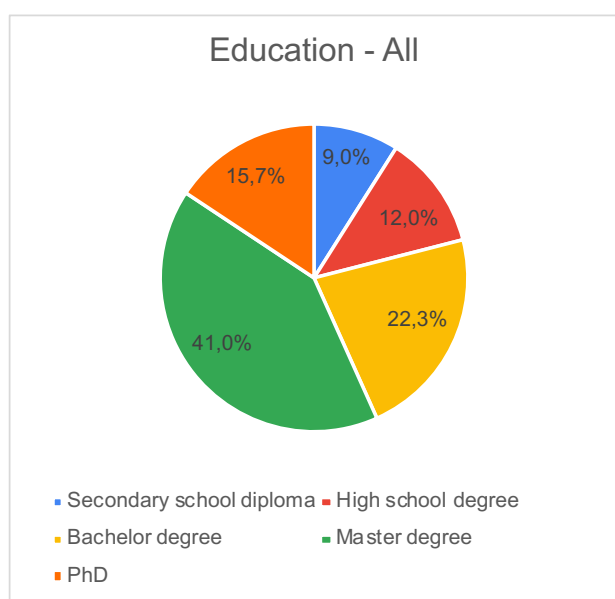


Figure 7 - % of respondents per age (all replies)

Regarding the education, **the majority of respondents declared to have a master's degree (41,0%),** more or less doubling the people with a bachelor's degree (22,3%). Considering also the number of people with a PhD (15,7%), it can be concluded that **the majority of participants in the survey had a high level of education.** In fact, only 21% of the respondents are not graduated at the moment: however, this is also due to the fact that several people in these two categories (as well as in the "bachelor's degree" too) have not already completed their studies.

The number of people working in the bioeconomy sector increase with the level of education. The 35,8% of people with a PhD are actually employed in this sector and this represent the highest percentage registered, followed by respondents with a masters' degree (19,0%). In the other cases, the percentage of people not working in the bioeconomy sector is extremely high, varying

from the 92,0% (bachelor's degree) to the 97,5% (high school degree). Given this, in PhD and Masters' Degree groups remarkable differences can be observed in data when all replies are compared to the ones collected only from people not working in the bioeconomy sector.

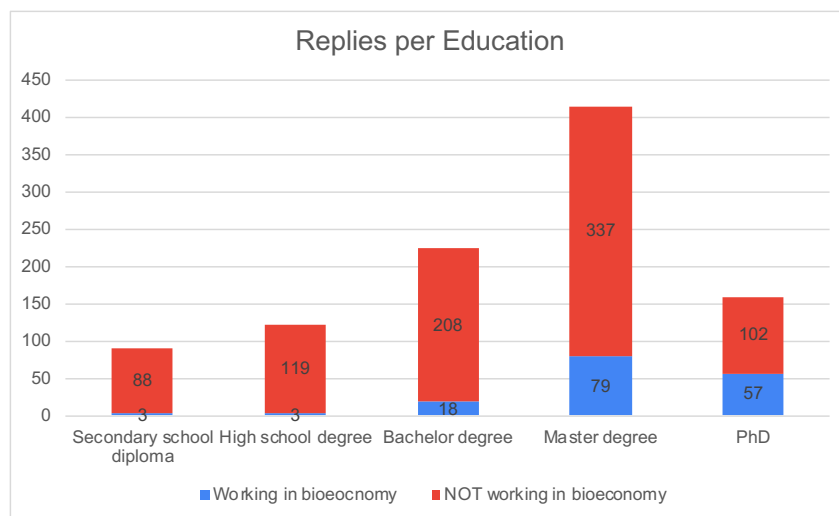


Figure 8 - replies per education - number of people working or not in the bioeconomy sector

3.3.7. Work and stakeholder typology



Figure 9 - % of respondents per work (all replies)

Work and stakeholder typology are two indicators that are strictly connected, and a joint analysis of them can help to better explain some data (for instance, the meaning of the work category *other*).

Starting from the indicator *work*, respondents had the possibility to choose from 10 categories of works, including the one "prefer not to say" (only the 3,5%). **The large majority of them declared to be office worker (36,3%),** more than the double of the category "other" (16,5%). Moreover, as expected by watching the age and education of respondents, many people that participated in the survey are currently studying. Looking at the Figure 9, reader could spot that there is a work category apparently missing: *researcher* (or

scientist). However, it was not inserted as a possible option, since the following question in the survey was dedicated to assessing the stakeholder typology of respondents.

The Figure 10 shows that the research/academy typology is the most represented (29,9%), however, also other categories had an adequate coverage, in particular the civil society (24,7%) and the industry (21,8%). Instead, policy makers are lagged behind (7,4%).

Analysing jointly the work and stakeholder typology indicators it is possible to understand **what the categories other, research/academia, civil society/NGO and industry contain**⁵.

People in the work category **other** declared to belong to research/academia (53,9%) or to civil society/NGO (23,4%): given this, it is possible to assume that, probably, **half of the respondents in the work category other are researchers or working in the academic sector**; meanwhile a quarter of the people who selected this category probably could not spot their specific job among the options presented.

As observed, the stakeholder typology **research/academia** contains half of the people in the other work category, the half of students, the 27,2% of autonomous workers, and one fifth of the office workers and unemployed.

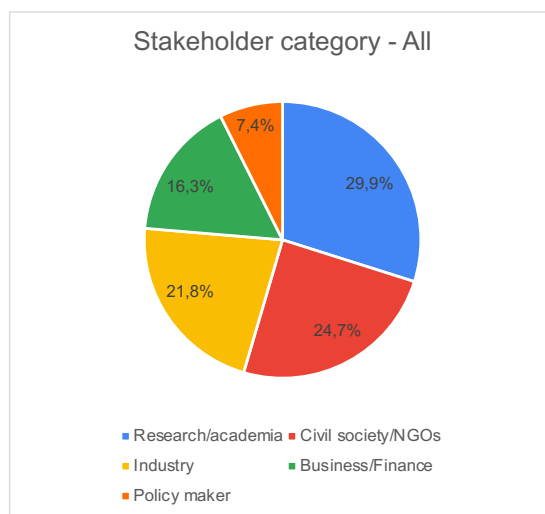


Figure 10 - % of respondents per stakeholder typology (all replies)

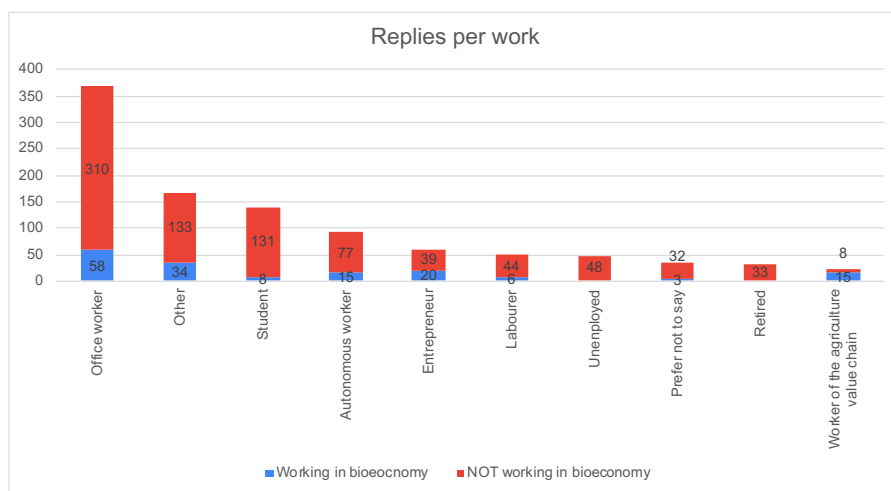


Figure 11 - replies per work - number of people working or not in the bioeconomy sector

The **civil society/NGO** is a variegated category, containing 17,9% of office workers (66 respondents, representing the 26,4% of the civil society/NGO category), 30,2% of students (42 respondents, the 16,8% of the category), the half of retired and unemployed people.

The same applies for the **industry sector**: it is composed mainly by office workers (88 respondents, 39,8%), autonomous workers (30 respondents, 13,6%) and labourer (27 respondents, 12,2%). However, looking at the stakeholder typology from the perspective of the work selected, it emerges that industry includes half of labourer and of the worker of the agricultural value chain, the 39,0% of entrepreneurs and one third of the autonomous workers.

⁵ Percentages mentioned in the following text are presented in the Annex 6.2.

The percentage of people working or not in the bioeconomy sector varies heavily according to the job. If unemployed and retired are coherently not involved in the bioeconomy, in the worker of the agriculture value chains and in entrepreneurs it is possible to find the largest percentage of people working in the sector, respectively the 65,2% (but only 23 replies were collected from them) and the 33,9%. Within the office workers, the largest group, only the 15,8% of respondents are working in the sector; meanwhile in the category *other* (in which we assumed that the half of them are researchers) the percentage increase up to the 20,4%. Finally, among students – the third largest group – the 94,2% is not involved in the bioeconomy sector.

Industry and research/academia are the two stakeholder groups with the highest presence of people working in the bioeconomy (around the 23%), followed by the group of the policy makers (16%). More than 92% of the respondents in the civil society/NGO and business/finance groups are not involved in the sector.

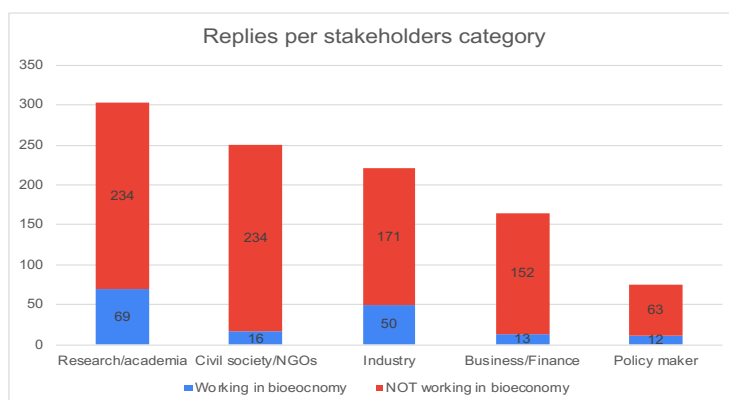


Figure 12 - replies per stakeholder typology - number of people working or not in the bioeconomy sector

4. CONSUMERS' AWARENESS AND PURCHASE HABITS

This chapter analyses data gathered by the survey. As showed by the Table 2 in §3.1, questions are grouped in thematic topics and discussed in dedicated paragraphs. In this chapter the reader will find only the graphs and tables selected as the most relevant for the opinions presented; meanwhile, all of them are available in the Annex 6.2. Considerations highlighted in this chapter will be used to design recommendations and actions to be implemented by the various stakeholders.

4.1. Bioeconomy awareness

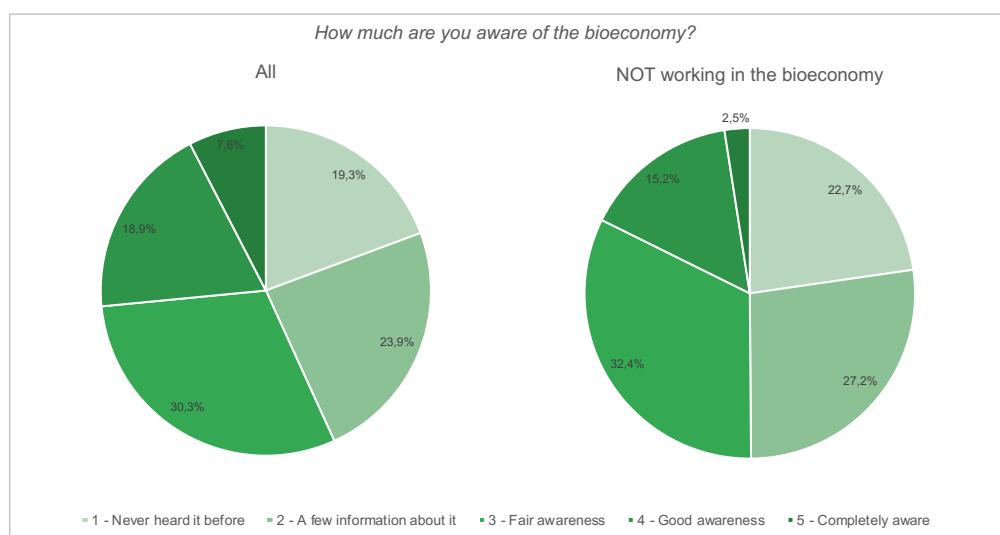


Figure 13 - Respondents awareness of bioeconomy: all vs. people NOT working in the bioeconomy

Half of respondents not working in the sector declared to have a really low knowledge of the bioeconomy: 22,7% of respondents has never heard this term before and the 27,2% has just a few information on it. However, considering all replies and also the ones involved in the sector, around one third of the people declared to have a fair knowledge of the bioeconomy and only a minority can say to have a good or complete awareness of it.

People were also asked to provide the right definition of the bioeconomy,

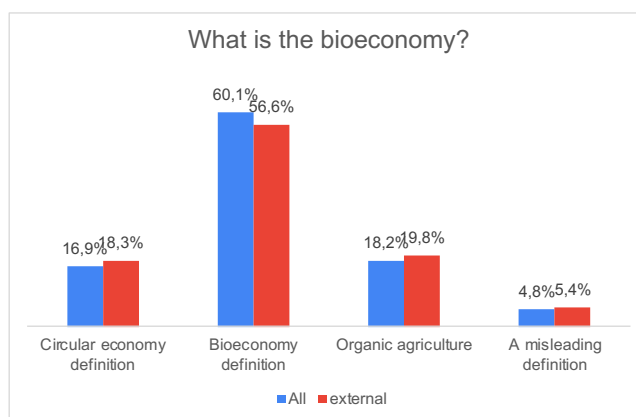


Figure 14 – Definition of the bioeconomy – all vs. not working in the bioeconomy sector

choosing it from four options⁶. The results (Figure 14) are in line with the awareness declared by participants, if we exclude a percentage of people who chose the correct option in a random way: indeed, the 56,6% of people not working in the bioeconomy provided the correct reply (respondents with a fair to excellent level of awareness are the 50,1% of the total, Figure 13); percentage that increase up to the 60,1% considering all replies collected by the survey (in this case, the 56,9% of respondents declared to have a level of awareness from fair to excellent, Figure 13).

Looking at data on bioeconomy awareness from a national perspective (Table 5), it is

Country	1 - Never heard it before	2 - A few information about it	3 - Fair awareness	4 - Good awareness	5 - Completely aware	#replies per Country
Belgium	0,0%	25,0%	25,0%	50,0%	0,0%	4 (13)
Croatia	25,0%	26,1%	30,7%	13,6%	4,5%	88 (93)
Estonia	8,2%	26,5%	40,8%	20,4%	4,1%	49 (51)
France	40,0%	0,0%	40,0%	20,0%	0,0%	5 (13)
Germany	37,7%	26,2%	27,9%	8,2%	0,0%	61 (74)
Greece	31,3%	34,3%	25,4%	7,5%	1,5%	67 (72)
Hungary	10,0%	10,0%	20,0%	40,0%	20,0%	10 (16)
Italy	22,9%	27,7%	36,2%	12,8%	0,5%	188 (230)
Portugal	10,2%	18,8%	28,1%	17,2%	1,6%	97 (105)
Slovakia	19,5%	34,1%	26,8%	12,2%	7,3%	41 (42)
Spain	25,8%	28,1%	33,6%	11,7%	0,8%	128 (157)
Netherlands	24,3%	29,7%	29,7%	12,2%	4,1%	74 (78)
UK	23,5%	17,6%	23,5%	35,3%	0,0%	17 (21)
EU	22,9%	27,6%	32,4%	14,7%	2,4%	837 (986)
Third countries	11,8%	5,9%	35,3%	41,2%	5,9%	17 (28)
TOTAL	22,7%	27,2%	32,4%	15,2%	2,5%	854 (993)

Table 5 - Bioeconomy awareness per country - NOT working in bioeconomy

confirmed a fair knowledge of the topic at the European level, even if the majority of replies are distributed – as expected – on the left side of the table showed below, where the awareness of the bioeconomy is lower. According to the data illustrated in Table 5, which only consider the replies provided by people not working in the bioeconomy sector⁷, participants from Germany seem to be less aware of the topic, followed by Greece and Slovaks.

The following graph (Figure 15, in the next page) shows the bioeconomy awareness on the basis of respondents' age. As in Figure 13, #1 indicates the lower level of knowledge (never heard bioeconomy before), #5 the maximum (completely aware of it), remarked by the different shade of green. The data takes into account only replies provided by people not working in the bioeconomy (numbers of respondents are indicated per each group).

From the graph in Figure 15, it emerges that **the youngest have the lowest awareness about the bioeconomy**: indeed, 74,3% of the teenagers have never heard it before or have just a few information on it. Also, the age group 18-24 (with 107 respondents, the 10,9% of the total participants not working in the bioeconomy) have little knowledge, as declared by the 52,3% of them. This observed across all age groups (except the one 25-34): **even if the awareness increases with the age, more or less half of the respondents declare to have a low level of knowledge** (from the 45,8% of elders to the 53,8% of people with an age between 55 and 65 years).

⁶ The options are reported in the Annex 6.2, Question 1. However, in the survey text were proposed the definitions of the circular economy, bioeconomy, organic farming and a misleading sentence on sustainability.

⁷ The last column shows the number of people not working in the bioeconomy per each country, as well as the total number of replies collected (in brackets).

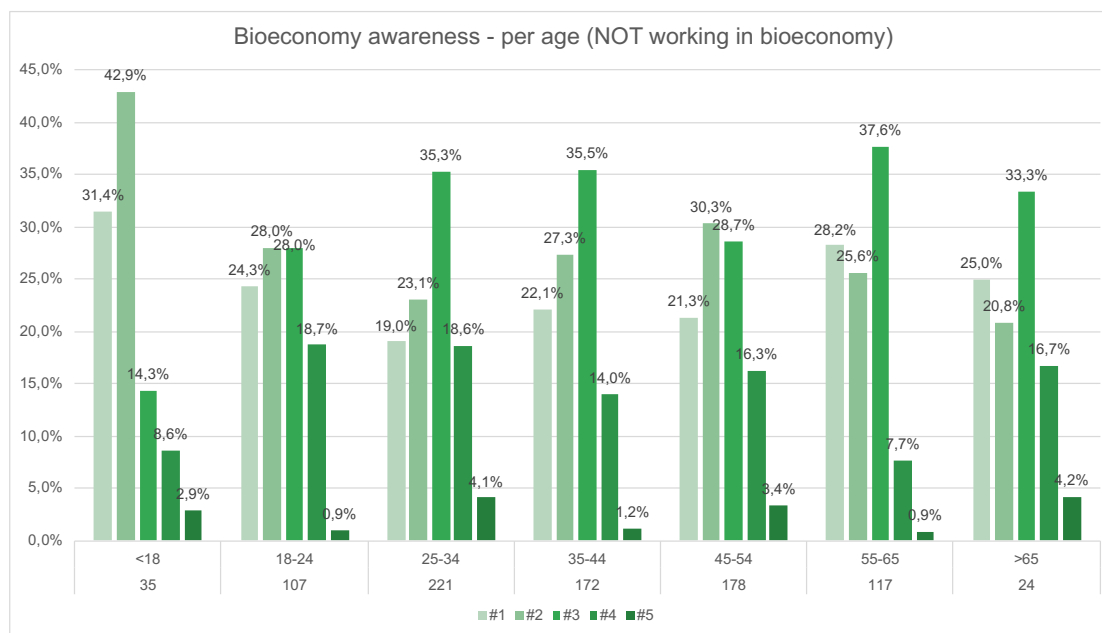


Figure 15 – Replies per age (people not working in the bioeconomy sector), including the number of respondents per each age group

The most informed about the bioeconomy are young people between 25 and 34 years: indeed, 22,7% of them have a good to excellent awareness of the topic (the highest percentage registered). In general, from 25 years, it is possible to observe a fair awareness of the topic, with an average of 35% of respondents (from the 33,3% of elders to the 37,6% of people in the age group 55-65). **An exception is constituted by respondents between 45 and 54 years, where we can observe a fair distribution of replies:** indeed, there is a high share both of low aware (51,6%) and completely aware people (19,7%, the second highest share registered). Anyway, in this age group, almost one third of respondents declare to have just a few information on the bioeconomy.

Taking into account the education (Figure 16), it is possible to observe **an increase of the awareness proportioned with a higher level of education:** indeed, it emerges a reduction in the first two columns on the left (low awareness) and, simultaneously, an increase of the two last columns on the right (high awareness). **From the high school diploma category there is a stable fair knowledge** (around one third of participants); moreover, also the highest level of knowledge is described by a short fork

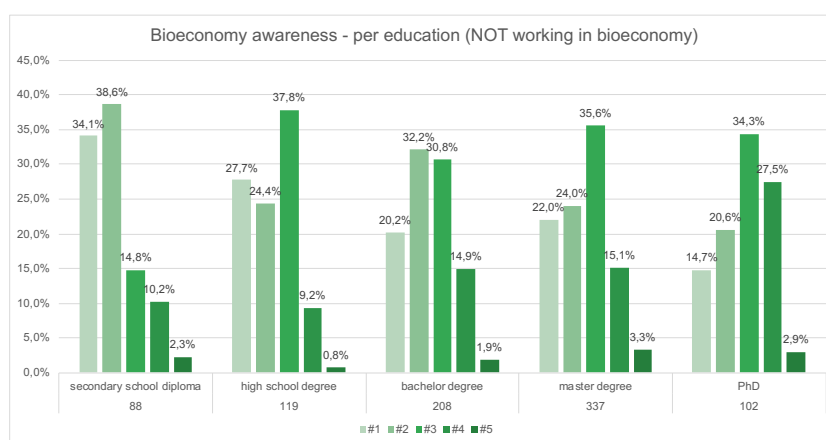


Figure 16 - Replies per education level (respondents not working in the bioeconomy sector), including the number of respondents per each education group

(from 0,8% to 3,3%)⁸. However, it is possible to observe that half of people with high school diploma and bachelor's degree have low awareness of the bioeconomy; this share is extremely high in respondents who declared to have the secondary school diploma or a lower degree of education (72,7%). Accordingly, respondents who declared to be retired, student, unemployed and labourer – and with, in general, a lower education title - are the ones less aware of the bioeconomy.

Having a look at the Figure 17 about the bioeconomy awareness owned by the various stakeholders' typologies

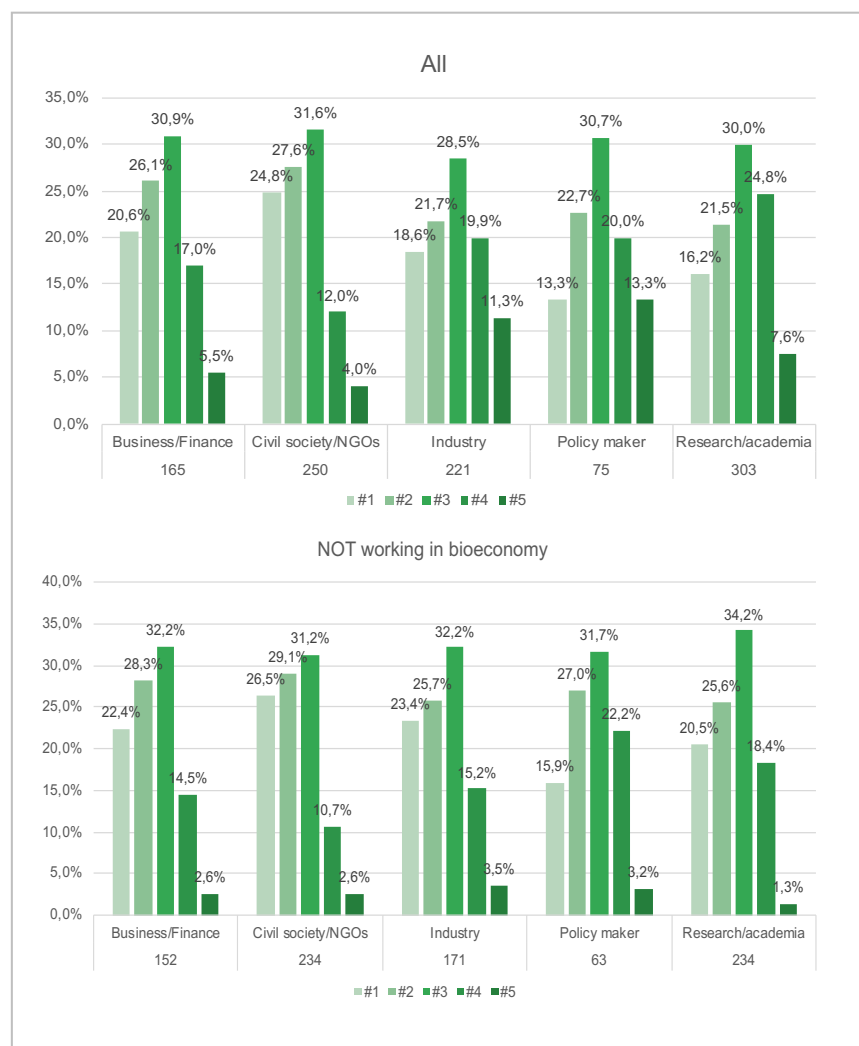


Figure 17 – Replies per stakeholder typology (all, up; people NOT working in the bioeconomy sector, on the bottom); including the number of respondents

(as in Figure 13, the lowest level indicated by the brightest shade of green; the highest level by the darkest one), it can be observed that around 30% of the respondents in each category declared to have a fair knowledge of the topic, regardless their involvement or not in the sector.

Substantial differences among the two graphs of Figure 16 can be observed about the people with the highest awareness on bioeconomy. Indeed, this difference is particularly visible by policy makers (10,1 %) and in industry (7,8%). No notable differences can be observed in business/finance and civil society/NGOs categories.

If we exclude people working in the bioeconomy sector (second graph), we can observe that these two categories are the ones with the highest number of respondents that have never heard about the bioeconomy or have just a few information: 55,6% for the civil society/NGOs (the less aware

⁸ The data considering all respondents to the survey (with no distinction between who works and not in the sector) is extremely different and biased, in particular in the master's degree and PhD groups: indeed, people completely aware of the bioeconomy (#5) are, respectively, the 8,7% (instead of 3,3%) and the 16,4% (instead of 2,9%).

category also including people working in the bioeconomy) and 50,7% business/finance group. **However, the second graph shows that in each stakeholder category there is a large percentage of people with a low level of awareness** (43,9% in policy makers, 46,2% in research/academia, 49,1% in industry).

Bioeconomy Awareness – Highlights

- Half of the respondents has low level of awareness of bioeconomy;
- Youngest are the least aware: even if the knowledge declared increases with the age, around half of the respondents in each group have a low level of awareness;
- Awareness increases with the level of education, in particular from the masters' degree
- Civil society is the least informed about the topic: however, in each stakeholder group there is a huge percentage of respondents with few or no information on bioeconomy.

4.2. BBPs awareness

After assessing the general awareness on the bioeconomy, survey focused on the BBPs, asking to participants to provide the correct definition (choosing from 4 options⁹) and to declare how much they feel aware about the BBPs and how much is easy to find them during shopping. The jointly analysis of data coming from those three questions will allow the definition of comprehensive considerations and comments on the consumers' awareness of BBPs.

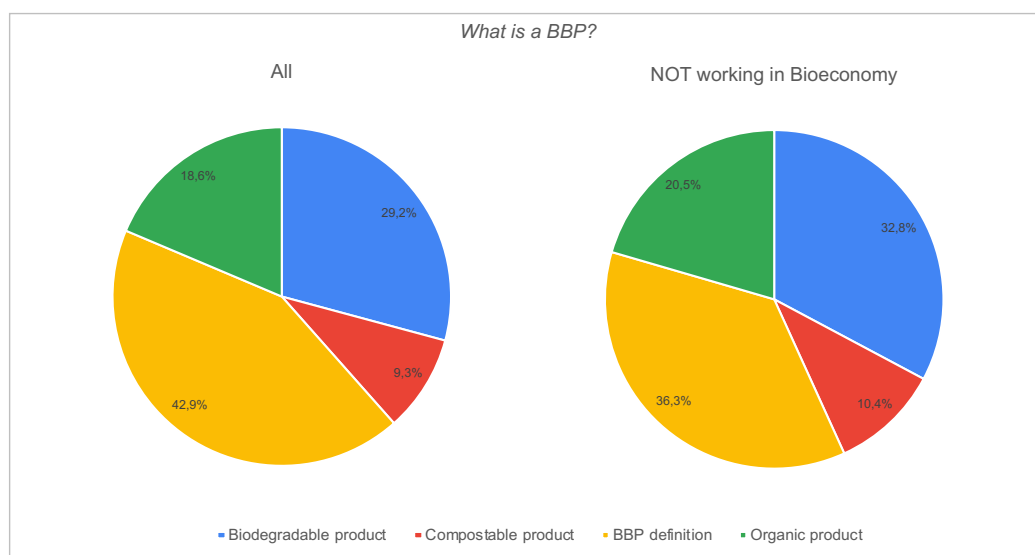


Figure 18 – Definition of BBP: all vs. people NOT working in the bioeconomy

Even if the majority of respondents provided the correct definition of what is a BBP, from Figure 18 emerges that **a large number of people** – both considering all participants in the survey or only the ones not working in the bioeconomy – **confused the definition of BBP** (*A product wholly or partly derived from biomass*¹⁰, in yellow in the graphs) **with the one provided for the biodegradable product** (*A bio-degradable product created from recycled resources*, in blue in the graphs). In particular, as showed by the Figure 18, the difference between the two definitions drastically decreases narrowing the audience of respondents: taking into account all replies collected, the difference is of 13,7 percentage points; meanwhile, excluding people working in the bioeconomy sector, the fork is of just 2,8%. Considering this, it is possible to state that, taking into account replies of people outside the “bioeconomy community”, **one third of the respondents believes that a BBP is a biodegradable product; in the meanwhile, the same share identified the correct definition.**

However, **the share of people providing the correct reply of BBP could be even lower than the 36,3%.** Indeed, some respondents could have replied choosing the option in a

⁹ The options are reported in the Annex 6.2, Question 3. However, respondent was asked to choose from (in order of appearance) biodegradable, compostable, BBP and organic product definitions. After this question, in the following section of the survey, the definition of BBP was explained to respondents using a graphic card (showed in §2), practical examples were provided, and people were invited to know more about them visiting the BIOart Gallery.

¹⁰ [CEN-CENELEC](#), EN-16575

random way; some others could have guessed thanks to the information on what the bioeconomy is, provided in the text of the survey after the first question.

Despite the confusion on the right meaning of BBP, the majority of respondents declared to have a fair awareness of them, as showed by Figure 19. In any case, **a large share of people has never heard about BBPs before the survey or has a few information on them** (39,4% considering all replies, 45,2% counting only people not working in the bioeconomy sector). Around one third of respondents declared a good or excellent awareness about them, percentage that drastically decrease to 22,6% considering only people outside the “bioeconomy community”. However, the level of awareness measured of BBPs are in line with the one of bioeconomy: in general, there is a small (around 5%) better knowledge of the products rather than the sector.

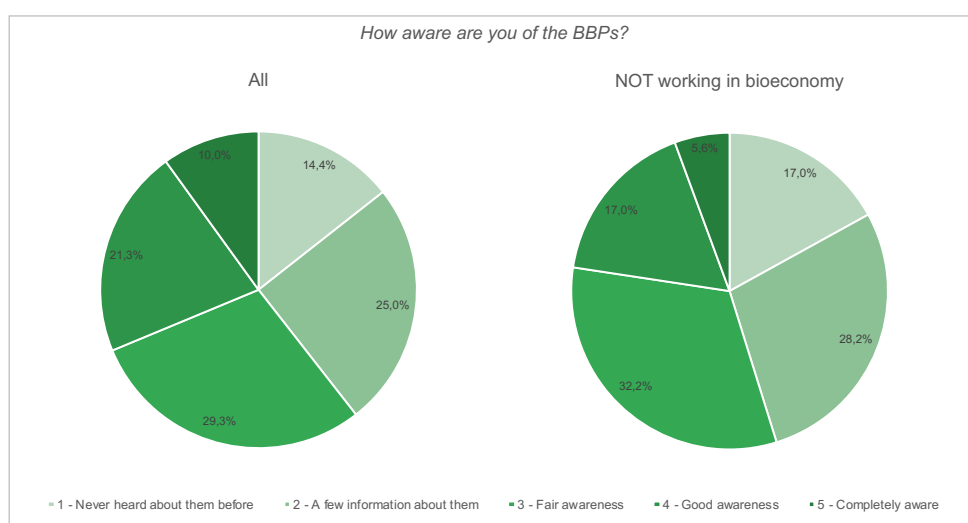


Figure 19 – Respondents awareness of BBPs: all vs. people not working in the bioeconomy sector

However, **respondents declared to have relevant shortcomings in finding BBPs when they shop**, no matter if they are working or not in the sector: as showed by Figure 19 (bright green for *impossible to find*, dark green for *I can easily find*), the two graphs are substantially identical, and **the half of respondents admit that BBPs are impossible or hard to find**.

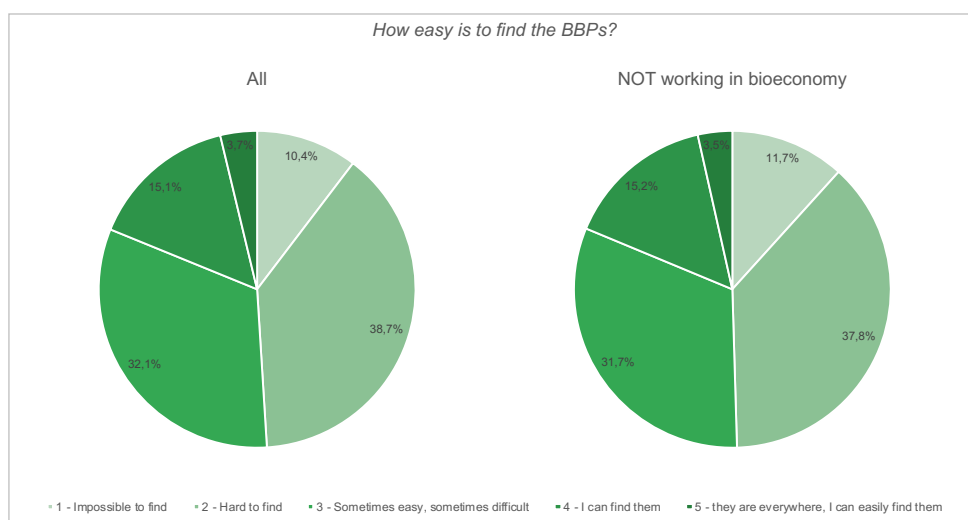


Figure 20 – Respondents ability in finding BBPs during shopping: all vs. not working in the bioeconomy sector

Looking at the data from a country perspective, finding BBPs during shopping seems to be an

Country	1 - Impossible to find	2 - Hard to find	3 - Sometimes easy, sometimes difficult	4 - I can find them	5 - they are everywhere, I can easily find them	# replies per country
Belgium	0,0%	30,8%	46,2%	23,1%	0,0%	13
Croatia	6,5%	37,6%	44,1%	8,6%	3,2%	93
Estonia	3,9%	51,0%	29,4%	13,7%	2,0%	51
France	23,1%	46,2%	30,8%	0,0%	0,0%	13
Germany	16,2%	35,1%	28,4%	14,9%	5,4%	74
Greece	22,2%	41,7%	27,8%	5,6%	2,8%	72
Hungary	25,0%	25,0%	25,0%	18,8%	6,3%	16
Italy	12,6%	43,9%	30,9%	9,6%	3,0%	230
Portugal	2,9%	24,8%	38,1%	30,5%	3,8%	105
Slovakia	2,4%	16,7%	28,6%	42,9%	9,5%	42
Spain	7,6%	41,4%	28,7%	18,5%	3,8%	157
The Netherlands	11,5%	42,3%	33,3%	10,3%	2,6%	78
United Kingdom	14,3%	28,6%	33,3%	19,0%	4,8%	21
EU	10,2%	38,1%	32,5%	15,5%	3,7%	986
Third Countries	14,3%	57,1%	21,4%	0,0%	7,1%	28
TOTALE	10,4%	38,7%	32,1%	15,1%	3,7%	1014

Table 6 - Respondents ability in finding BBPs during shopping per country - all respondents per country

issue in the majority of countries. In many cases, percentage around the 40% are observed (higher than the EU average of the 38,1%), with the highest value declared by Estonian consumers (51,0%). Respondents from Portugal (105 people, the 10,4% of the total) seem that find BBPs easier than the others: indeed, the 38,1% declared that sometimes is easier

and sometimes harder to find those products during the shopping; however, the 30,5% of them (the most relevant share, considering the size of replies) declare that can find them (#4).

A general difficulty in finding BBPs can be assessed also by gender (Figure 21): a similar percentage of female (50,9%) and male (46,4%) respondents declared that it is impossible or hard to find BBPs; meanwhile this share is lower in who preferred to not declare the gender (38,7%, but this category collected only 31 replies, the 3,1% of the total). If we consider together the two highest rates possible (#4 – I can find them and #5 – they are everywhere, I can easily find them), this last group is the one that has less problem in finding BBPs, (38,8%), followed by male respondents (24,2%); meanwhile only the 14,9% of female ones declared to not have particular issues.

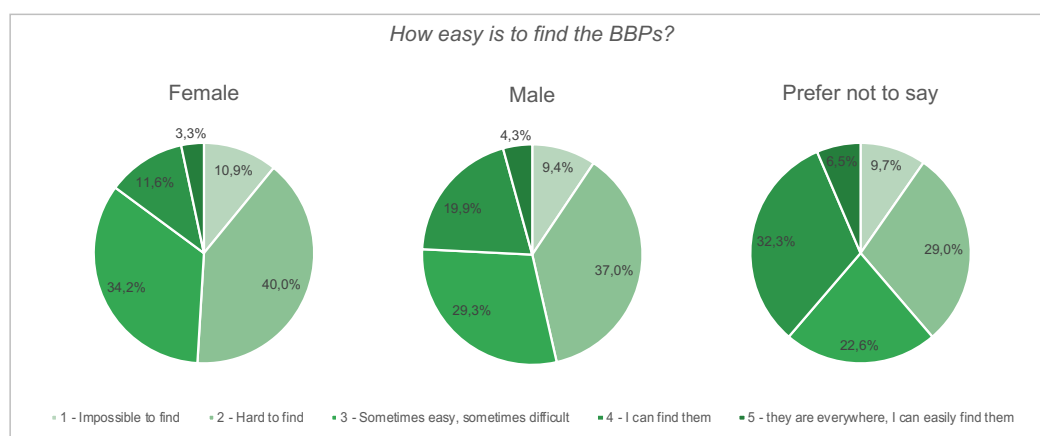


Figure 21 – Respondents' ability in finding BBPs during shopping per gender – all respondents

The analysis of the BBP awareness of consumers based on the age of respondents presents interesting facts and considerations, in particular when the knowledge that some categories declare to have about BBPs is compared with the ability to find them during shopping. Moreover, in the next pages, data per age presented and considerations proposed will be

analysed and assessed taking into account also the education level and the work of respondents.

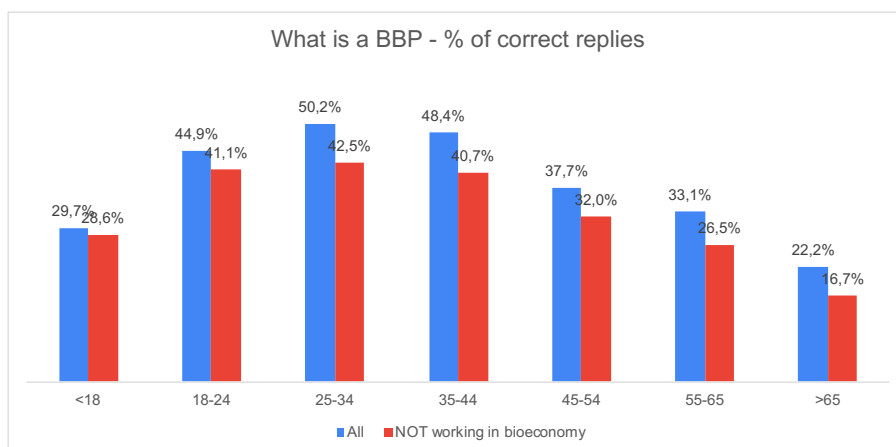


Figure 22 - What is a BBP - % of correct replies (all vs. not working in bioeconomy)

In general – as happened for the bioeconomy awareness, showed in §4.1 – **teenagers and the elders (>55) are the less aware on BBPs.** First of all, this is showed by the fact that the share of correct replies provided by them (Figure 22) is constantly under the

average of the Figure 18 (42,9% considering all respondents, 36,3% taking into account only the ones not working in the bioeconomy sector), as registered also for the age group 55-65. Instead, people from 18 to 44 years provided a higher number of correct replies respect to the average; meanwhile the age group 45-54 is in line with the average.

When people were asked to rate the awareness the have on BBPs (from #1 – *never heard it before* to #5 – *completely aware*, indicated respectively with the brightest and the darkest shades of green in Figure 23), some of the assumption made before are confirmed.

Indeed, **people from 18 to 34 years appears as the most aware:** 28,1% of the respondents in the 18-24 group and 27,6% in the 25-34 age group declare to have good or excellent awareness of BBPs. In the latter age group, it is possible to register the lowest share of people who have not heard before BBPs or have

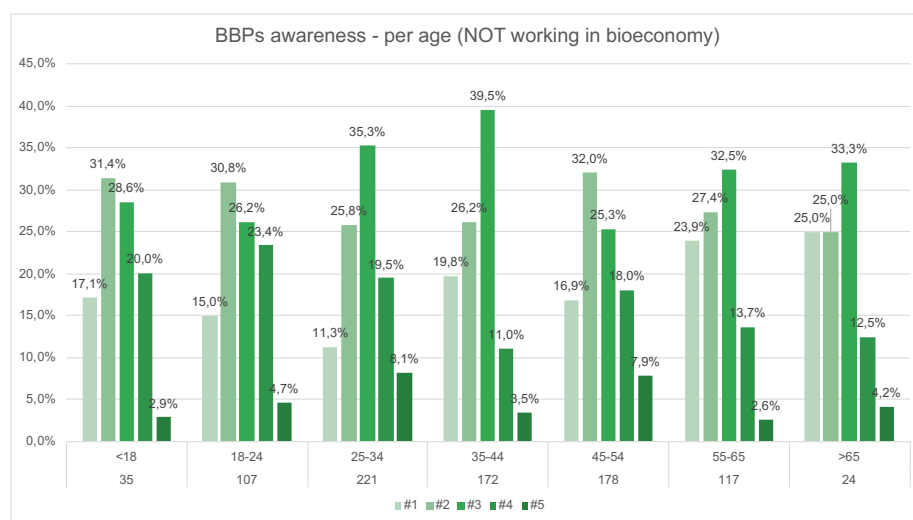


Figure 23 - Replies per age (respondents not working in the bioeconomy sector), including the number of respondents per each age group

only a few information on them (37,1%; and anyway, the majority of respondents declare to have a fair awareness, 35,3%). However, excluding this age group, **in general, and similarly to what registered for the bioeconomy awareness, a high share of people (45%-50,3%) have never heard about BBPs or have only a few information on them.** The highest percentages are registered in the two groups composed by elders, where he half of them have lacks in knowledge on the topic.

As happened for the bioeconomy awareness, also in this case **there is a fair distribution of opinions in the 45-54 age group**: a relevant share of respondents (25,9%, the third highest one) has a good or excellent awareness of BBPs; on the other hand, also the amount of people with low knowledge on those products is high (48,9%, the third highest one). As expected, the percentage of people with a fair awareness is the lowest one among various age groups.

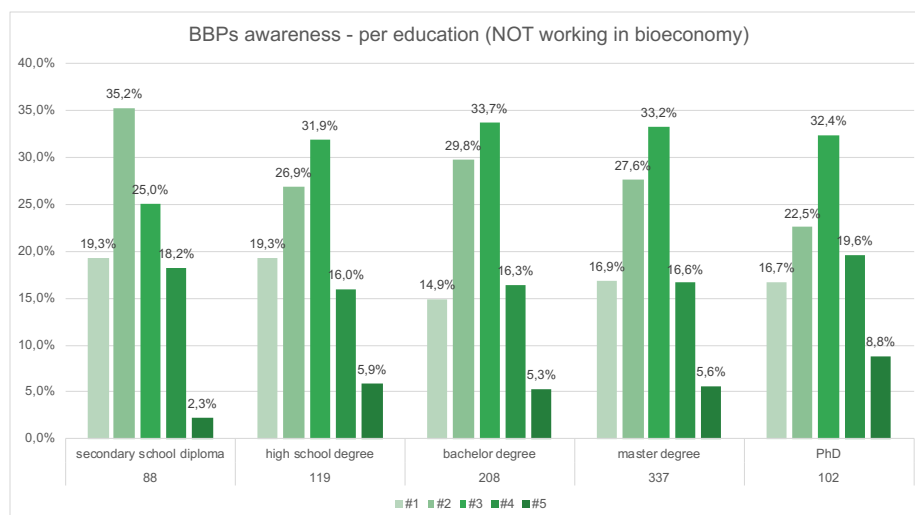


Figure 24 - Replies per education level (respondents not working in the bioeconomy sector), including the number of respondents per each education group

Despite the respondents' educational qualification, from the graph of Figure 24 emerges a constant share, included in the fork 20,5%-22,2%, of people that declare to have a good or excellent awareness of BBPs; except for people with a PhD, where the share is of the 28,4%.

Moreover, excluding people with the lowest educational qualification – that are the less aware (54,5% of them have never heard about BBPs or have only a few information; meanwhile only the 25% have a fair knowledge) – people in the three middle groups (high school degree, bachelors' degree and masters' degree) have a really similar knowledge of the topic, since around the 45% of them have a low level of awareness and around one third declare a fair one.

After those data and considerations, **it would be expected to see that the less aware (teenagers and people with a secondary school diploma) have more difficulties in finding BBPs when they shop; at the contrary, most aware respondents (people in the 25-34 age group and with a PhD) should have no issues in findings BBPs. Instead, exactly the opposite happens.**

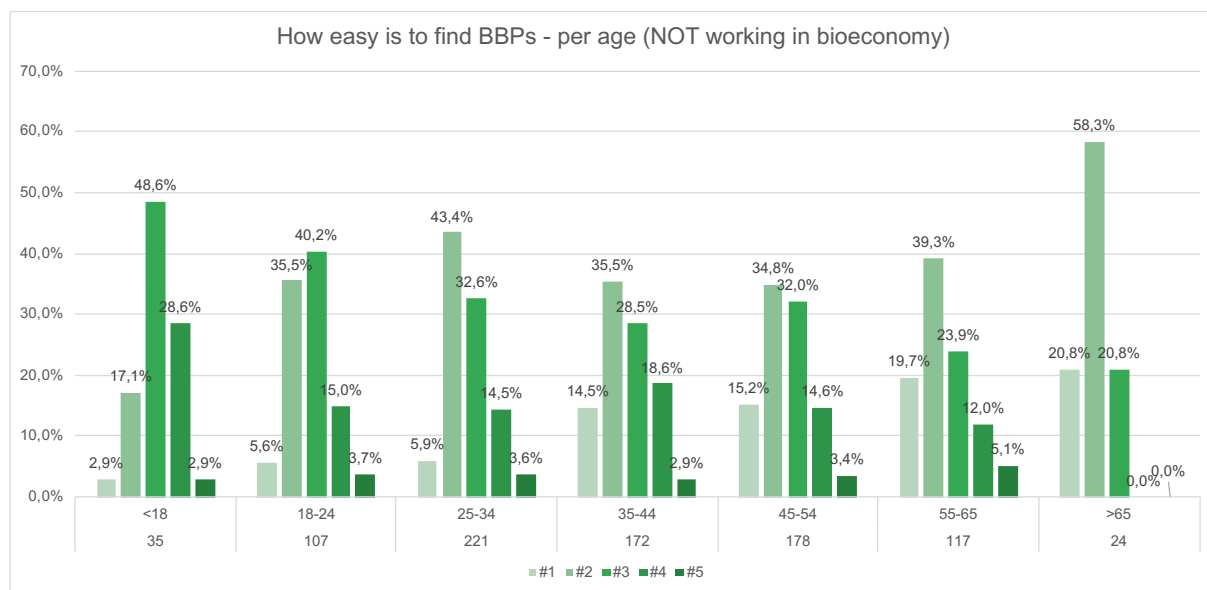


Figure 25 - Replies per age (respondents not working in the bioeconomy sector), including the number of respondents per each age group

Starting from the analysis per age (Figure 25), the 31,5% of the teenagers declare that they can find BBPs during shopping or it is extremely easy¹¹; a share incredibly high if compared to the ones in the two groups including people from 18 to 34 years (18%), the most aware of BBPs. Moreover, if teenagers declare to have not heard before about such products or to have only a few information (48,8%, Figure 23), now only the 20% have difficulties in finding BBPs during shopping.

The same happen when looking at the education indicator (Figure 26), where a **higher educational qualification is associated with a higher difficulty in finding the BBPs during shopping; and vice versa**. Indeed, respondents with the secondary school diploma are the ones most confident about their ability to find BBPs while shopping: in this category we register both the highest amount of rates regarding the ease (22,7%) and the lowest share of people with issues in finding them (35,2%); finally, here it is possible to observe the highest share of people with a fair ability to find BBPs (42%). At the contrary, in the masters' degree and PhD category the lowest share of people that easily can find BBPs is registered (respectively, 15,5% and 19,6%); as well as there are the highest percentage of people declaring that is impossible or hard to find them (respectively, 57,3% and 56,8%). So, it emerges **that the more you know about BBPs, the less you find. What could be a possible explanation for such evidence?**

¹¹ As for the other graphs, the brightest shadow of green is associated to the lowest rate (#1 – impossible to find) and the darkest one to the highest rate (#5 – they are everywhere, I can easily find them).

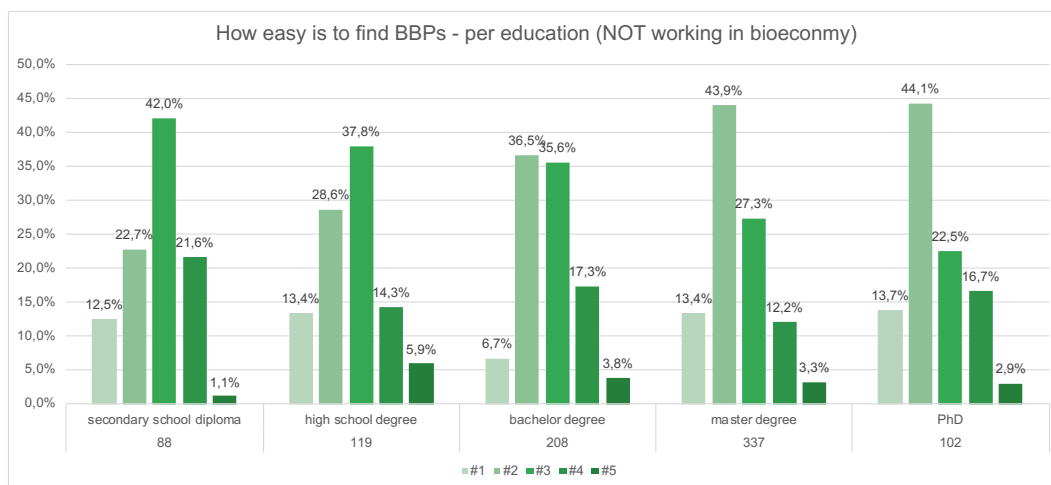


Figure 26 - Replies per education level (respondents not working in the bioeconomy sector), including the number of respondents per each education group

A possible explanation is that people with a low awareness of BBPs (and of the



Figure 27 – Replies to “What is a BBP” question per age (up) and education (on the bottom), including the number of respondents – people not working in the bioeconomy sector

are mixing those products with the biodegradable and compostable ones (and, in general, with a product perceived as sustainable).

This means that their opinions could be biased by a wrong knowledge of such products. Indeed, looking at the replies provided to the question “What is a bio-based product?” (Figure 27), it appears clearly that teenagers and people with the secondary school diploma completely mistaken the biodegradable products (darkest red column, the first one) with the bio-based ones (green column). Considering also this data, it could be possible to assume that – in general – respondents that declares a low awareness of BBPs are confusing them with other ones, that probably are sustainable but not necessarily are bio-based¹². Stating that, it could be possible also to assume that people

are mixing those products with the biodegradable and compostable ones (and, in general, with a product perceived as sustainable).

¹² To this purpose, as explained in §2, the survey was designed to provide information and examples about the BBPs, in order to empower people to participate consciously in the investigation and, in

with a higher level of awareness are able to clearly distinguish a BBP from the other ones; however, the difficulties in finding them during shopping could depend on other various factors (for instance, the scarce availability in shops, the low recognizability respect to the other ones, the lower market uptake of them, etc.).

Those two statements on those two different groups (the less and the most aware of BBPs) path the way and reinforce different recommendations and actions, presented in §5. For instance, having in mind the confusion of consumers on BBPs and other products, it is essential to make effort to better explain the existing differences (as well as the real meaning of BBP) and to enable consumers to distinguish from them.

Finally, looking at data considering the indicators of the declared job and, in particular, of the stakeholder typology, no additional considerations emerge. For instance, taking into account the latter indicator (Figure 28), in each stakeholder category there is around the half of respondents that have never heard before about the BBPs or have only a few information; at the same time, around the 20% declare to have a good or excellent level of knowledge.

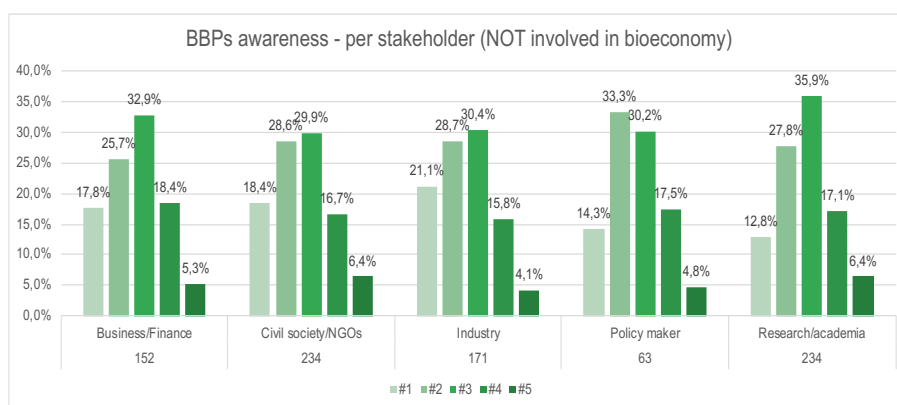


Figure 28 - Replies per stakeholder typology (people NOT working in the bioeconomy sector); including the number of respondents

BBPs Awareness – Highlights

- Around 40% of the respondents have never heard about BBPs or have a few information on them;
- People easily mix BBPs with other products or with some of their properties (e.g., compostability, biodegradability, etc.);
- In general, respondents with a low awareness of BBPs declared to easily find them when shopping; however, probably they are just confusing them with other products;
- In general, respondents with a high awareness of BBPs declare to have difficulties to the find them when shopping;
- Teenagers and elders are the less aware of BBPs.

particular, to the following questions on awareness about BBPs and the ability to find them during shopping.

4.3. The impacts of the BBPs

Participants were asked to indicate what are, in their opinion, the most important impacts that BBPs have, both positive and negative, in two different questions. In each of them, they had the possibility to indicate up to three options¹³. Results are presented using the percentage of replies collected by each possible reply.

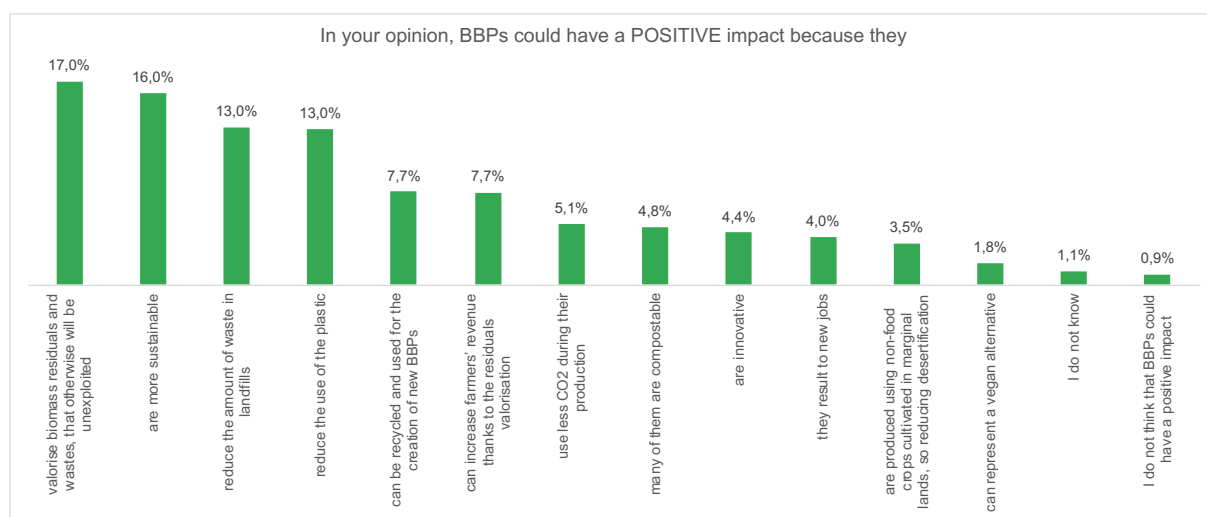


Figure 29 - % of BBPs positive impacts

First of all, respondents had a clear preference for four options (Figure 29): indeed, considering the number of possible replies, there is a relevant distance between the fourth and the fifth most voted options.

Connected to this, it is important to notice how **the first four most rated impacts are all related to an environmental dimension**. In particular, according to respondents, BBPs have positive impacts on what is related with **the end-life of resources and products**, since they can re-use of biomass residuals and wastes otherwise unexploited (17,0%) and, consequently, can reduce the amount of waste to be allocated in landfills (13,0%). The other two options chosen are related to **the topic of sustainability**, intended as a general feature of the BBPs and as a way to face the use of plastics. Given this, it can be stated that **environmental and sustainability impacts are generally well perceived and recognised** by respondents.

However, **the economic impacts of the BBPs are not considered as relevant or not recognised by respondents**. In general, one of the most stressed features by policy makers about the bioeconomy is its ability to create new jobs and to boost the local development. The [updated Bioeconomy Strategy 2018](#) clearly points out this aspect, as well as various European or national institution in their promotional communication activities about the sector. Looking at the results of the survey, it seems that those impacts are secondary for respondents: the first economic impact (increase of farmers' revenues) is the sixth one with 7,7% of votes; and, in particular, **only the 4,0% of votes were assigned to the possibility that BBPs could have a positive impact on the jobs creation** (that is currently one of the most-mentioned impacts by the European institutions working in the sector). With that in mind, such results

¹³ As explained in §3, for those questions it is not possible to provide the same level of detail of previous paragraphs.

could suggest a reshaping of the messages of the current and future communication and awareness campaigns.

Alongside, **the innovation that BBPs could have is not perceived or recognised by respondents**: indeed, this impact received only the 4,4% of preferences (anyhow more than gathered by the impacts on job creation).

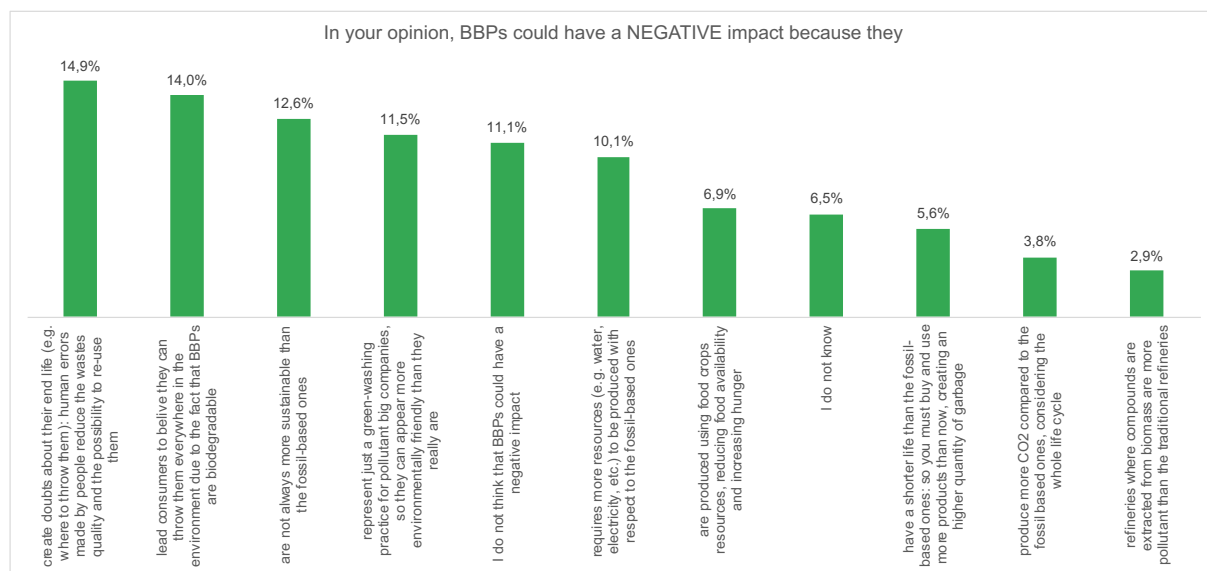


Figure 30 - % of BBPs negative impacts

The end life of resources and products has a primary relevance also regarding the negative impacts that BBPs could generate (Figure 30). In particular, respondents are concerned of the incorrect disposal of such products, due to the few or confusing information provided by them (e.g., through labels) and that could create doubts in consumers: first of all (14,9%), ambiguous information on how to throw them could have the consequence to reduce the waste quality (and so the possibility to reuse it); then, respondents are concerned that – due to the scarce information – consumers could feel themselves allowed to throw BBPs in the environment because they think (erroneously) they are biodegradable (14,0%) – aspect that, as the more informed knows, it could be not true.

Sustainability matters also in the possible negative impacts: indeed, the third option voted (12,6%) regards the fact that BBPs are not automatically more sustainable than their fossil-based competitors. Despite this, it is possible to state that respondents recognise significant positive and sustainable impacts: in addition to what already said starting from data of Figure 29, this is demonstrated also by the fact that **many people (11,1% of votes) said that BBPs have no negative impacts**.

Moreover, having a look at raw data¹⁴, it is possible to observe that, in general, respondents used all (and also more) of their three votes in the question on positive impacts; meanwhile, in the one on negative impacts, respondents decided to use just the 69,4% of the votes at their disposal (2.111¹⁵), probably because they identified fewer negative impacts than positive. Even

¹⁴ Raw data of the survey are available on the [Biobridges website](#).

¹⁵ A number that could be lower if we exclude votes assigned to the options “I do not think that BBPs could have a negative impact” or “I do not know”.

if this could mean a general openness of respondents for those, on the other hand, it seems that, in general, **people are not aware of possible negative impacts of BBPs**.

Finally, some concerns raised about the fact that big brands could introduce BBPs just for greenwashing practices and not for being more sustainable (11,5% of votes, fourth place), so creating negative impacts rather than positives ones.

The impacts of BBPs – Highlights

- Respondents prioritise and recognise the relevance to environmental impacts of BBPs (in particular regarding the end-of-life of products and their sustainability);
- Economical impacts are not perceived or, at least, are secondary for respondents;
- In general, respondents believe that negative impacts are decisively minor compared to the positive ones;
- Respondents are concerned about negative impacts that an incorrect disposal of BBPs could generate;
- There is a lack of awareness on possible negative impacts generated by BBPs.

4.4. Purchase of BBPs

Participants were asked to indicate the motivation that push or what discourage them to buy BBPs, in two different questions. In each of them, they had the possibility to indicate up to three options. The analysis is completed also by an investigation about the consumers' willing to pay. Results are presented using the percentage of replies collected by each option and a national perspective is provided¹⁶.

4.4.1. Results' overview

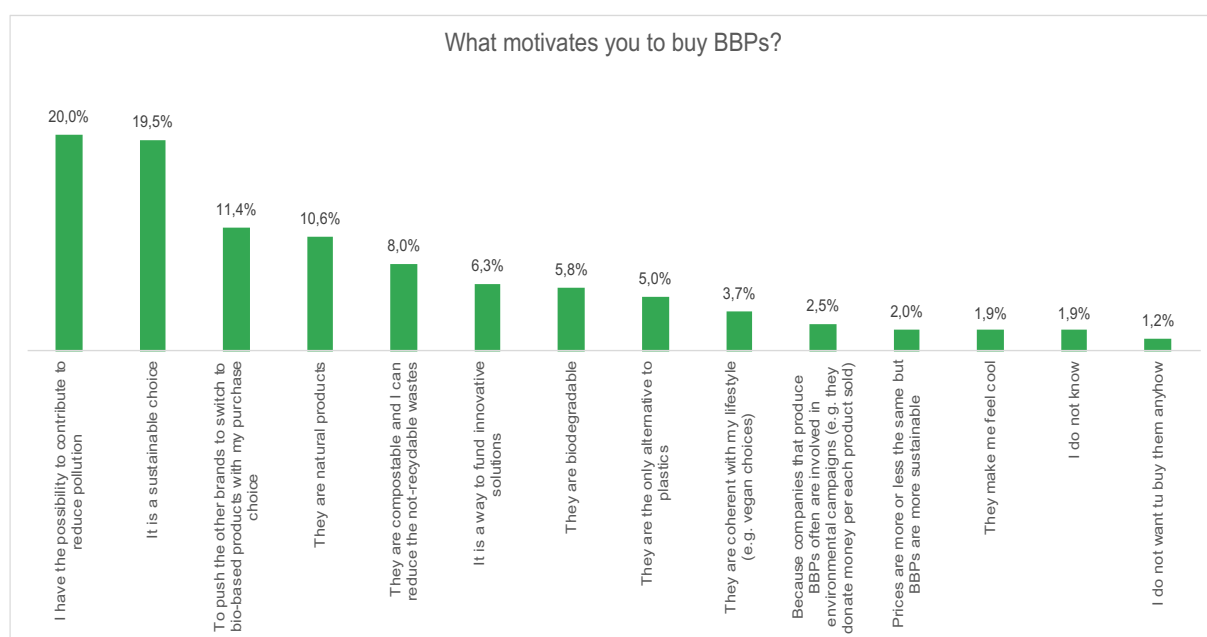


Figure 31 - % of motivation to buy BBPs

Also, in this case, **the (possible) addiction demonstrated by respondents for the BBPs is led by environmental-based motivations**. The first two most voted options – that collected almost the double of preference compared to the third motivation – are related to the idea that buying BBPs can contribute to reduce pollution (20%) and that they represent a sustainability choice (19,5%). Such replies confirm what was already stated in the previous paragraph: **the eco-friendly perception of the BBPs can constitute a relevant attraction for consumers**. However, as it is well known in the sector, BBPs are not the “holy grail” of sustainability, not all BBPs offer the same level of sustainability, and the fact of being BBP doesn't mean it would be the best option for our planet. This is why it is very important to establish standards and certifications that provide information about the whole life cycle of BBPs. Thus, allowing our consumers to make decisions when purchasing BBPs.

This biased perception is also showed by the fact that the fourth most voted motivation is about the presumed naturality of BBPs. Indeed, even if they are created starting from natural resources, and in many cases by residuals of biomass otherwise unexploited, such feedstocks are treated through a chemical process. No doubt about the fact that they are generally more natural than their fossil-based competitors, however – considering also the replies about the

¹⁶ Regarding the national perspective, in this case it is used the rule of thumb presented in §3.2.2.

BBPs definition and awareness – it emerges the suspicious that respondents expressed their preferences without being fully aware of what a BBP really is. In particular, they could have confused them with labels or features assigned to products generally presented as sustainable, “green”, organic, etc., as showed also by the analysis presented below by a national point of view. So, **remarking the openness of consumer for what is sell as eco-friendly, it seems that from data appears a substantial confusion and lack of awareness of BBPs.**

Staying on the sustainability, it is interesting to notice that the 11,4% of motivations regard the possibility for consumers to induce a change in brands. Indeed, respondents pointed out that purchasing BBPs could stimulate big companies to adopt materials and solutions to replace in their catalogues the fossil-based products with the bio-based ones. On the other hand, as showed by Figure 32, **consumers are anyway sceptical about greenwashing practices performed by brands:** the fourth motivation that slow down respondents in buying BBPs (12,5% of votes expressed) is that they could be just a disguise made by big companies for appearing more sustainable than they in reality are.

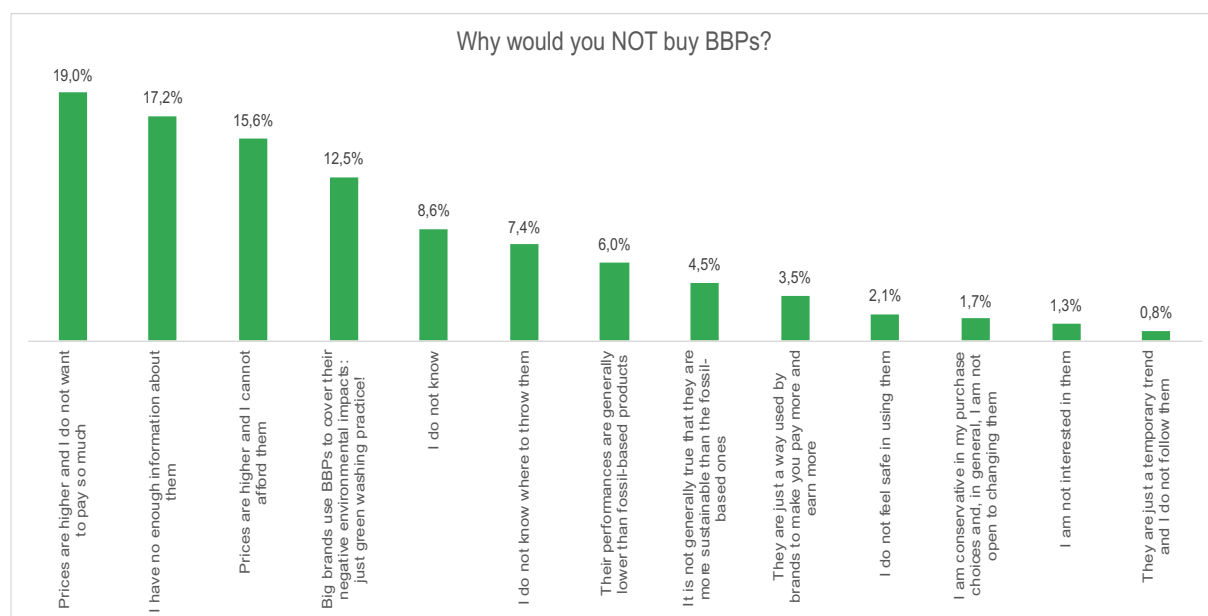


Figure 32 - % of motivations discouraging BBPs purchase

However, looking at the factors discouraging consumers in buying BBPs (Figure 35)¹⁷, it appears that **two motivations affect respondents' choices: the price and the information on products.**

First of all, two out of the three most voted options show that **respondents perceive BBPs generally expensive.** Then, a part of them declares that are not willing to pay for them (14% of replies provided); meanwhile, other respondents admit that they cannot afford such costs

¹⁷ As described in the previous paragraph during the comment to the Figure 30, also in this case participants provided less replies than they were allowed to do (1.929) and, significantly, the option “/ do not know” collected the 8,6% of votes. Such choice it could be interpreted in part as a lack of information of respondents, and in part as also a lack of motivation to not buy them.

(15,6% of votes expressed). So, this could mean that if their salary or budget would be higher, they would buy BBPs instead of the fossil-based ones.

Before to present more detailed considerations on the price, it is necessary to notice that the second most voted motivation about the factors discouraging the purchase of BBPs regards the lack of information on them (17,2% of expressed votes). This data – that will be analysed in §4.6 when information that respondents would like to find on labels will be presented – could be read jointly with the option about the lack of information on how dispose BBPs (7,4%). Given this, **providing more explanation to consumers and filling the existing gap on information available could motivate them to buy BBPs**. Coherently, this is what emerge from Figure 33¹⁸, that shows what could motivate more the choices of respondents towards such products.

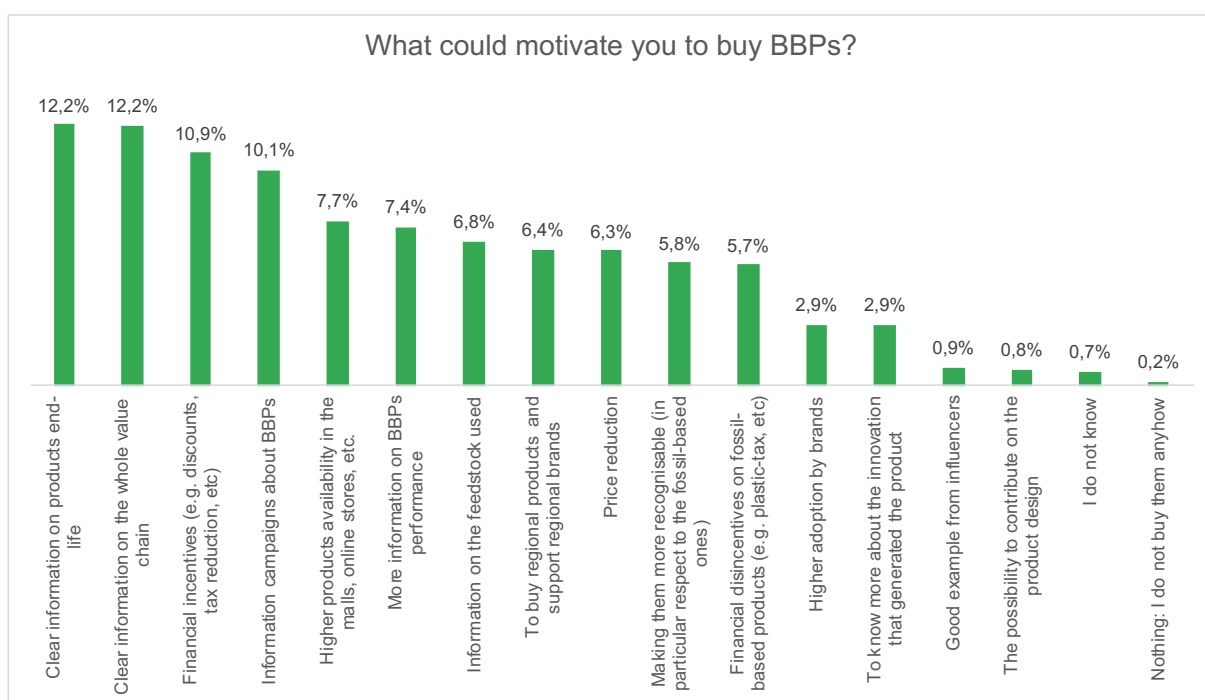


Figure 33 - % of motivations that could incentives respondents to buy BBPs

Definitively, respondents want to know more about BBPs to be motivated to buy them; moreover, information are more relevant than a reduction in their prices, as showed by the fact that three out of the first fourth most voted options related to this topic.

In particular, the most wanted information regards the products end-life, as well as on the value chain that generated them (12,2% for both). Moreover, **respondents asked relevantly for an information campaign about the BBPs (10,1%), that could really increase their awareness about them**.

Even if they strongly declared that the price could discourage the purchase of BBPs (Figure 32), at the same time, they are putting the economic incentives or price reduction on a

¹⁸ Meanwhile the Figure 30 is built on what are the motivations that actually move respondents to choose BBPs, the graph in Figure 32 shows which actions would incentives participants to the survey to increase the purchase of such products.

secondary level. This could mean that **providing information on BBPs could be an action more effective in changing consumers' purchase habits respect to intervene on the price**: this consideration is coherent with what we saw before, namely, that respondents put the sustainability and impacts on the environment on a priority level respect to the economics ones.

Despite this, the third motivation per number of votes regards the introduction of possible incentives (10,9%). Differently from the price reduction (where, generally, the rebate is operated automatically by the market and by the competitiveness), in this case **respondents ask to other stakeholders to take the action to award certain choices and incentives purchase behaviours** through, for instance, the introduction of tax reductions made by policy makers, rewards operated by retailers to consumers preferring BBPs, etc. In addition, it emerges that respondents would have incentives than disincentives, since the introduction of penalties in case of less sustainable purchase habits (e.g., the introduction of a plastic-tax to discourage the use of products made by fossil-based plastics) received a little amount of votes (5,7%).

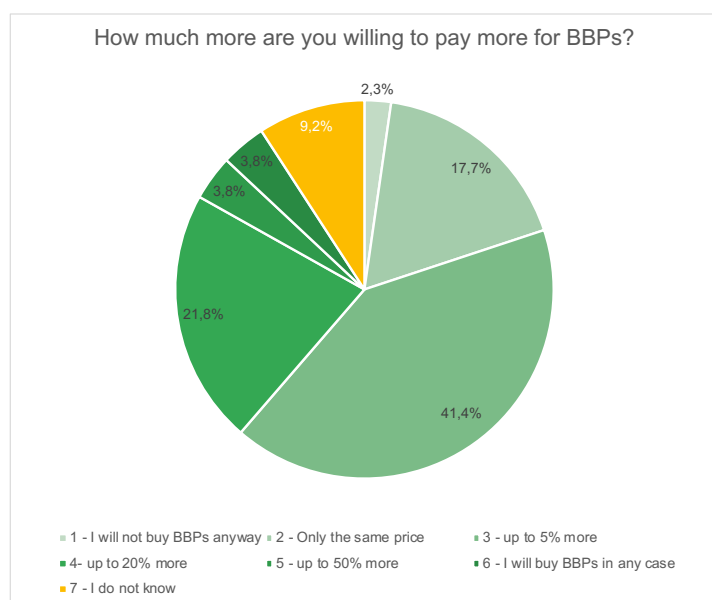


Figure 34 - % of availability to pay more for BBPs compared to fossil-based products – all respondents

Since price become a relevant discussion point, let comment the results about the respondents' willing to pay for BBPs. Starting from a brightest shadow of green (*I will not buy BBPs anyway*) up to a darkest one (*I will buy BBPs in any case, the price does not matter to me*), Figure 34 shows how much more respondents are available to pay for BBPs respect to fossil-based ones¹⁹. The (conspicuous) piece in yellow in the graph indicates the percentage of replies provided by people that do not know how much they would pay more.

It emerges that **only a minority of people are not available to pay more for BBPs** (20%, considering

both respondents that do not want to buy BBPs in any case and the ones that want to pay only the same price of fossil-based products). On the other hand, **the large majority of consumers (70,8%) are available to pay more for BBPs, generally preferring to not exceed the 5% more of the current price of other fossil-based products (41,4%)**. It is also relevant the share of respondents available to pay up to 20% more fore BBPs, corresponding to the 21,8%²⁰

¹⁹ Considering that no relevant differences were observed in considering replies from all respondents and the ones collected only from people not working in the bioeconomy sector, Figure 34 considers all the 1.014 replies to the survey.

²⁰ It must be noted that, also in this case, there are no relevant changes between replies provided by all and the ones coming only from people not working in the bioeconomy sector. Indeed, to the 21,8% presented in Figure 34 correspond the 20,6% (cfr. Annex 6.3)

(but this opinion should be taken *cum grano salis*, since some of respondents could have ignored the effect of such increase with different price ranges).

Even if the share of people available to pay more in general is almost the same (70,9% for females and 72,1% for males), it is possible to observe that male respondents are available to buy BBPs with a higher price respect to the fossil-based ones (25,4% of them declares that agree to pay 25% more and the 5,4% of male respondents the 50% more). In addition, in female participants to the survey it is possible to observe a share of 10,9% of people that do not know how much are available to pay more (the double respect to the one observed in males); **however, in female respondents the percentage of people not available to buy or to pay more for BBPs than they actually do for fossil-based products is lower than in males** (18,2% for the first ones and 22,5% for the second ones).

Moreover, from the survey emerges that, in general, **the willingness to pay is inversely proportional to the age: indeed, youngsters are willing to pay more for BBPs compared to the fossil-based products than elders would do.**

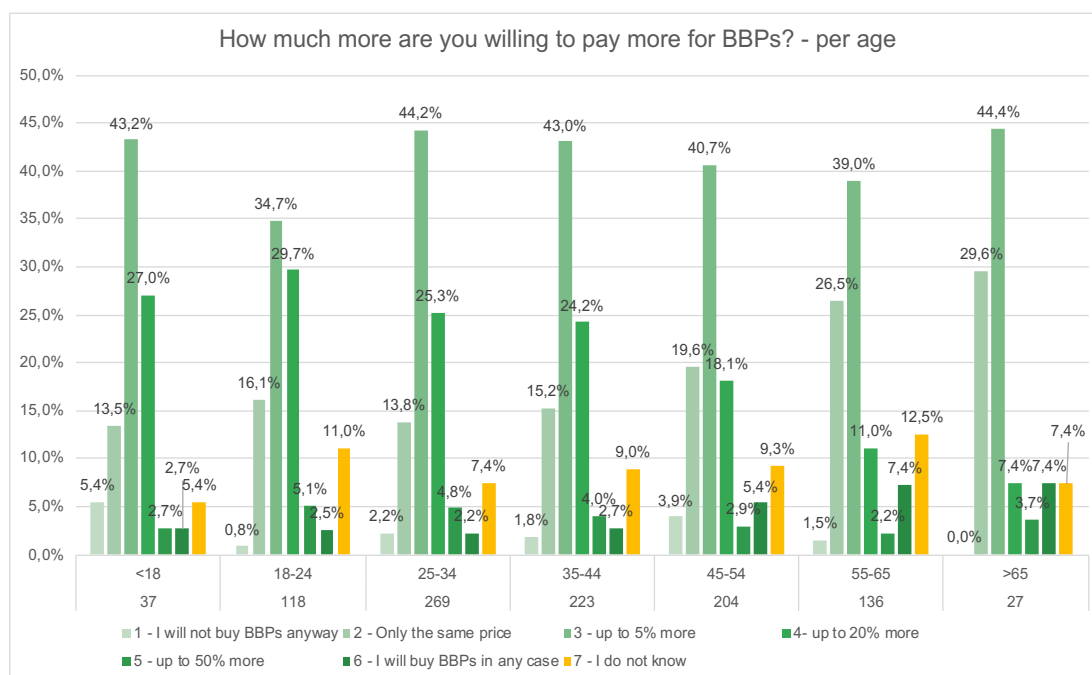


Figure 35 - Replies per age (all), including the number of respondents per each age group

Looking at the graph in Figure 35, it can be observed that the column indicating people available to pay up to the 20% more decrease constantly from the 29,7% in the 18-24 age group to the 7,4% in the >65 one; simultaneously, the percentage of people that want to pay the same price for BBPs and fossil-based products start to grow considerably from the 45-54 age group, after that it was stable in youngsters respondents.

It is interesting to read this data with the job declared by participants.

The Figure 36 (in the next page) shows that 28,8% of the students declare to be available to pay up to the 20% more for BBPs respect to the fossil-based ones, the highest share registered for this option (excluding the workers of the agriculture value chain, a job category much smaller than the students one). Matching the age with the profession declared, it can be stated

that **young students – belonging to the s.c. Gen Z – are available to buy BBPs and – in particular – to spend much more for them than to the fossil-based ones**. It should be noted that this category corresponds to the one that was recently involved in the public debates on topics related to sustainability (and in particular to the climate change, as showed by the movement of the *Fridays For Future*). Looking at this data from another perspective, it could

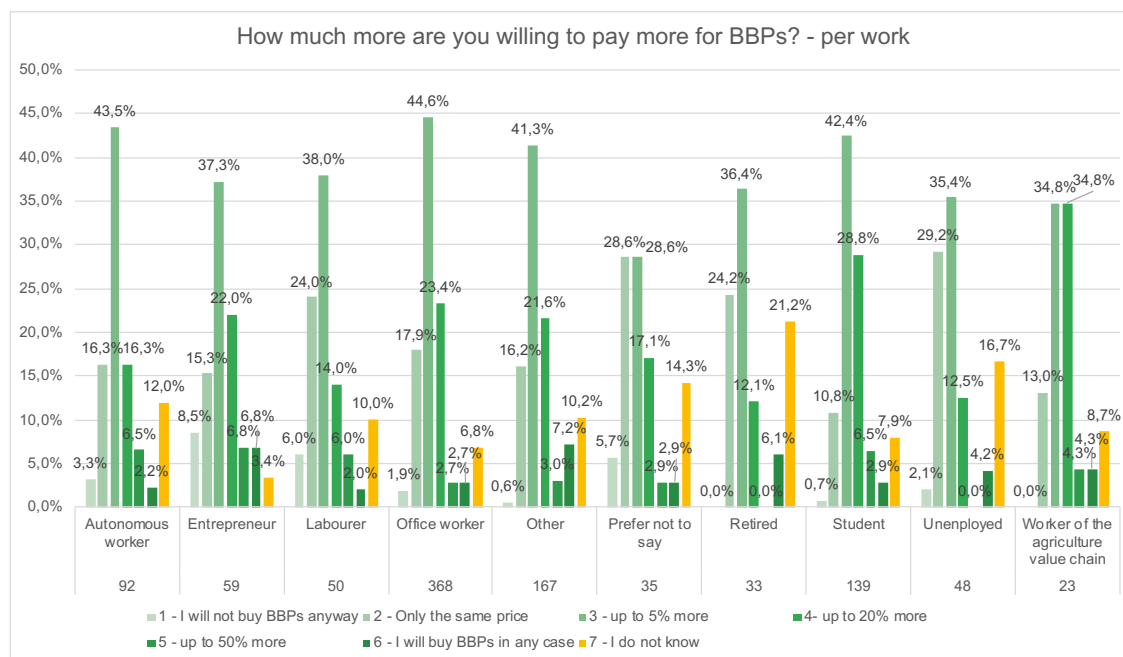


Figure 36 - Replies per work (all), including the number of respondents per each work group

be stated that **brands willing to invest in BBPs could find an interested market target in the Gen Z**, as showed by young students that participated in the survey.

Coming back from the two previous graphs, **another way to explain the data** and, in particular, the decreasing willing to pay higher amounts for BBPs, **is that, growing up, people become more aware of their available budget and decide to dedicate less resources to potentially more sustainable purchase choices**. Indeed, it could be pointed out that, in general, young students – at least a part of them – are spending monetary resourced that come from more from parental subsidies rather than own salaries.

Even if both statements – young students that want to pay more for BBPs because motivated by environmental values or because the resources spent are not “owned” by them – could be true, according to the perspective used to read the data emerged, **it must be remarked the general availability of all respondents to pay more for BBPs, at least the 5% more, despite the age and the work declared**.

Purchase of BBPs – Highlights

- Actually, consumers are driven to buy BBPs by environmental-based motivations;
- Actual prices and lack of information are the two main barriers that lead consumers to continue to purchase fossil-based products;
- Having more information on BBPs would be more effective than prices reduction to motivate consumers to purchase them;

- Respondents prefer that the price reduction would be generated by the introduction of incentives;
- Having in mind such motivations, consumers are generally available to pay more for BBPs than the fossil-based alternative;
- However, the majority of respondents prefer not to exceed a 5% in the price increase;
- In general, youngers are available to pay more for BBPs than elders would do;
- The *Gen Z* (young students up to 24 years) is largely available to pay a higher increase for BBPs (up to 20% more);
- The differences on willingness to pay among generations could depend (alternatively or both) on a peculiar perception/awareness on environmental challenges or/and the source of monetary resources (parental subsidies or own incomes) used to shop.

4.4.2. The national perspective

Considering the replies collected by each linguistic version of the survey (at exclusion of the English one) as a representation of consumers from Estonia, Croatia, Germany, Greece, Italy, Portugal, Slovakia and Spain, data on purchase habits are commented taking into account the national perspective.

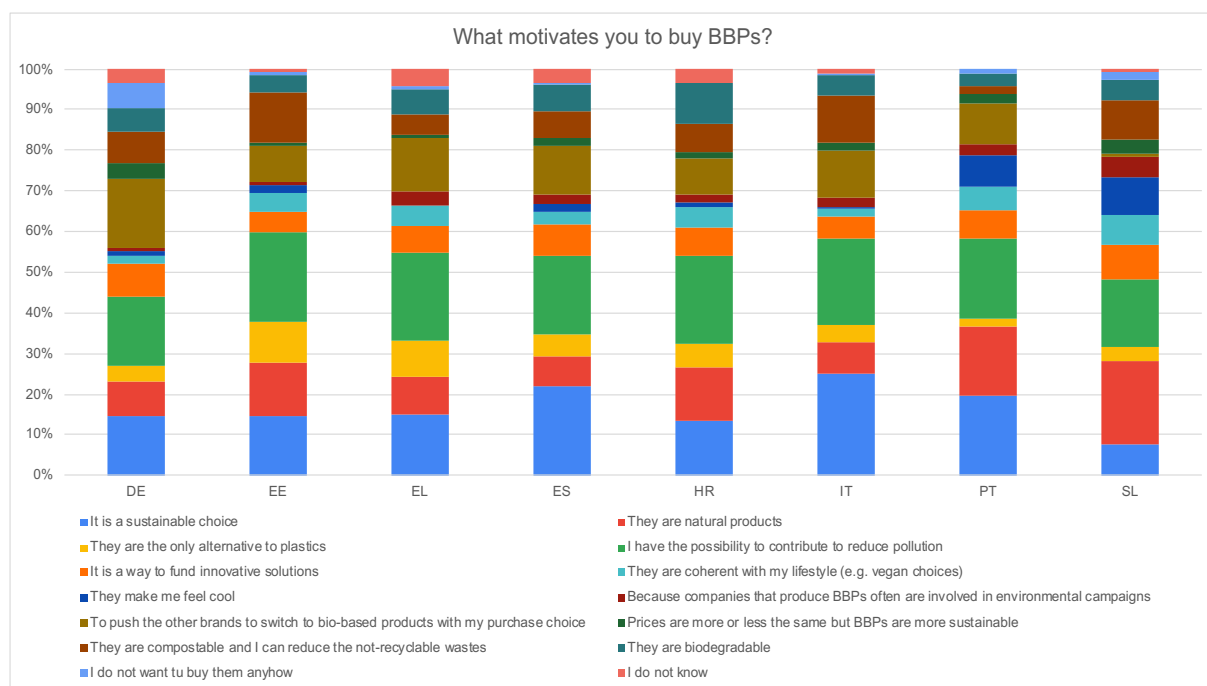


Figure 37 - % of motivation to buy BBPs per each survey language version

Among Estonians, it seems that the reduction of pollution and contributing to sustainability could motivate them to buy BBPs, more than other options could do. The same, it seems that can be declared for Italian respondents.

In Spain, has been an intensive campaign with the problem of plastics in the last years and it has been launched a National and Regional Strategies about Bioeconomy and Circular Economy. Given this, it seems that people are more aware and conscious with the environment

and link “bio-based” with a sustainable choice and pollution reduction which also can be the alternative to use plastics.

Looking at data collected in Slovakia, it could be observed a relevant predominance of the motivation the perception of BBPs as natural. This could be caused by the fact that “bio-based” is often (mis)interpreted and perceived as something “natural” or “organic” which is believed to be healthier.

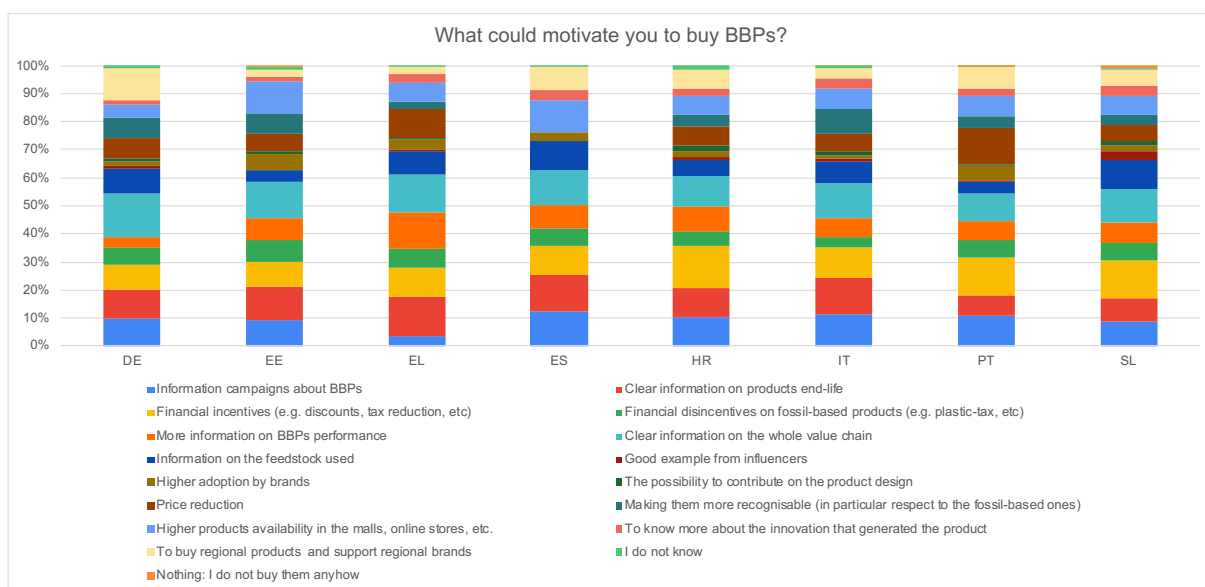


Figure 38 - % of motivations that could incentives respondents to buy BBPs per each survey language version

In general, in all language versions of the survey is confirmed what observed in the previous paragraph: respondents confirm that they could be more motivated in purchasing BBPs if they will receive information on them. In Spain, in addition to this it is registered that having financial incentives could ensure an increase in BBPs purchase. In Estonia and Spain is higher the percentage of preferences to find a higher availability of BBPs in shops (both online and in stores).

Country	1 - I will not buy BBPs anyway	2 - Only the same price	3 - up to 5% more	4- up to 20% more	5 - up to 50% more	6 - I will buy BBPs in any case	7 - I do not know	#Replies per Country
Belgium	0,0%	30,8%	53,8%	15,4%	0,0%	0,0%	0,0%	13
Croatia	2,2%	19,4%	37,6%	19,4%	6,5%	4,3%	10,8%	93
Estonia	2,0%	11,8%	41,2%	27,5%	5,9%	2,0%	9,8%	51
France	0,0%	7,7%	30,8%	38,5%	7,7%	0,0%	15,4%	13
Germany	4,1%	13,5%	32,4%	24,3%	9,5%	4,1%	12,2%	74
Greece	1,4%	22,2%	44,4%	19,4%	1,4%	2,8%	8,3%	72
Hungary	0,0%	12,5%	31,3%	56,3%	0,0%	0,0%	0,0%	16
Italy	2,2%	16,1%	45,7%	16,1%	3,5%	7,4%	9,1%	230
Portugal	1,9%	21,0%	42,9%	17,1%	2,9%	3,8%	10,5%	105
Slovakia	4,8%	21,4%	40,5%	21,4%	4,8%	0,0%	7,1%	42
Spain	1,3%	17,8%	44,6%	21,7%	0,6%	0,6%	13,4%	157
Netherlands	2,6%	10,3%	47,4%	30,8%	1,3%	2,6%	5,1%	78
UK	9,5%	52,4%	14,3%	9,5%	4,8%	4,8%	4,8%	21
EU	2,3%	17,7%	41,7%	21,4%	3,5%	3,9%	9,4%	986
Third Countries	0,0%	14,3%	32,1%	35,7%	14,3%	3,6%	0,0%	28
TOTAL	2,3%	17,7%	41,4%	21,8%	3,8%	3,8%	9,2%	1014

Table 7 - Respondents willing to pay more for BBPs – all respondents per country

Having a look at the Table 7²¹, it emerges that the large majority of respondents in each country is clearly in favour to pay more and up to the 5% for BBPs instead of fossil-based products (excluding the 21 British, that in large part are asking to pay the same price or are not willing to buy them anyhow).

Looking at the preferences gathered by the other possible replies per each country, it is possible to note that there is a higher share of respondents from Greece, Portugal and Slovakia respect to the others asking to pay the same price as for the fossil-based products. On the other hand, a higher percentage of Dutch, German and Estonian declare that they are available to pay up to the 20% more for BBPs.

²¹ Differently by figures 37 and 38, this table takes into account all replies coming from all versions of the survey and the real nationality of respondents.

4.5. Sectors

Respondents were asked to indicate in which sectors they are more available to buy BBPs, as well as the ones in which they are not. In this case, the results are presented only considering replies overall, since the analysis conducted per each language version does not differ from it²².

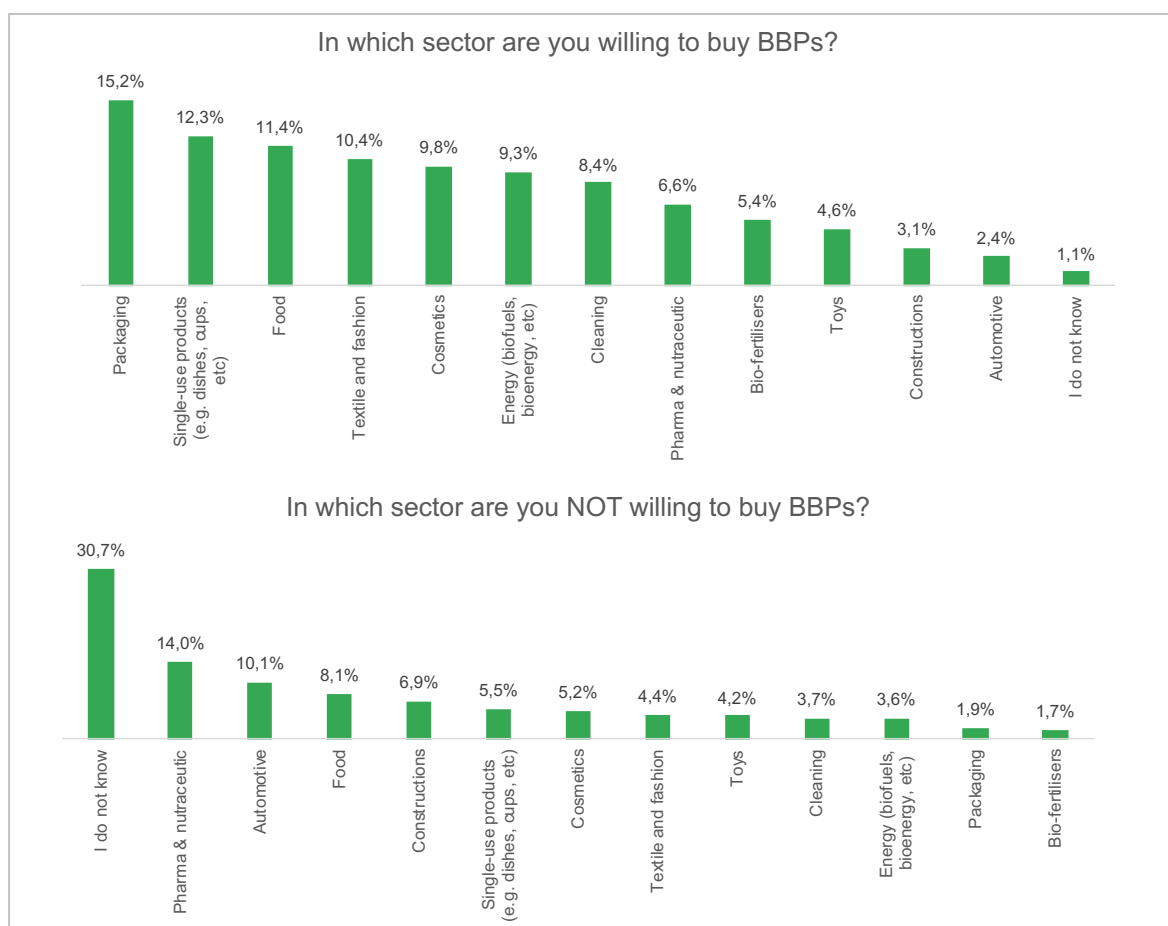


Figure 39 - % of sectors in which respondents would (up) or would not buy BBPs (in the bottom)

The first, relevant, data emerging by the graphs is that “I do not know” option reached the highest number of votes (30,7%) in the question about the sector in which people are not willing to buy BBPs. This could mean that, probably, **a relevant share of respondents is generally available to buy BBPs in the various sectors** or that they have not enough information to express their opinions. However, the second interpretation seems to be contradicted by the fact that when asked about the sectors in which they would to buy BBPs the same option collected just the 1,4% of votes and that, more important, respondents used all the 3 votes at their disposal.

Of course, **despite this general openness to buy in the various sectors, respondents have specific preference for some of them**. The most voted are the packaging (15,2%), with a difference of around 3 percentage points respect to the single-use products (12,3%), food

²² However, the graph produced using the rule of thumb are available in Annex 6.2

(11,4%) and textile and fashion (10,4%). Looking at those fore sectors, some comments could be proposed, having in mind what said and emerged in the previous paragraphs.

Firstly, **those sectors are the ones under the lens of one topic that respondents showed to really take into account: the sustainability**. Indeed, several campaigns – managed by policy makers, brands, association, etc. – are focusing on the promotion of products that are more sustainable than the existing one (e.g., compostable single-use products), to increase the awareness on the consequences of some behaviors aiming to change consumers' habits (e.g., on the fast fashion practices), the environmental impact of some products (e.g., the pollution and consequences generated by plastics), etc. Moreover, the public debate is currently focused on such topics by all stakeholders, from the civil society (again, it could be mentioned the movement of the Fridays For the Future for contrasting the climate change) to the brand owners.

Moreover, **such products are well-known by consumers – and so by respondents – because they are largely available on the market even if, the majority of cases, they are recognized generally as sustainable products** (as we saw in §4.3, BBPs are generally confused by eco-friendly or sustainable products). Looking at the first two sectors, respondents could have replied thinking to compostable and/or biodegradable products (as we have some perception from §4.3): even if some (or many) cases are probably bio-based too, this cannot be taken for granted. Moreover, it could be happening that respondents are already making a large use of BBPs without knowing it. So, again, those preferences could be also chosen due to some confusion on the real meaning of BBPs and the lack of awareness on them.

The presence of the food in the top-three sectors could be in part explained also as a consequence of the fact that in some countries (e.g., Italy, Greece, Portugal, Spain, Germany etc.) the prefix “*bio-*” is automatically connected by consumers to the organic food that, in general, is perceived as more sustainable or natural. Also, in this case, **some choices could be done due to the confusions generated by the terminology**.

In addition, **it could be stated that respondents prefer to choose BBPs that are not consumer durable goods**. Indeed, looking again at the most voted sectors, it is possible to see that those are generally proposing products to consume immediately or with a short life²³. It could be demonstrated by the fact that construction and automotive sectors are at the bottom in the first graph (respectively, 3,1% and 2,4% of votes) and in the first positions in the second one (6,9% and 10,1%). So, **again it seems that respondents do not want to buy consumer durable goods that are bio-based**.

Moving the look at the sectors in which people do not want to buy BBPs, and excluding the “*do not option*”, **it appears that the pharma & nutraceutical sector is the one in which respondents are most skeptical for their purchase**. This evidence is really surprising, since this sector is one of the can benefit the most from bio-based products (and it could be that consumers are already making a large use of BBPs without knowing it). It should be investigated more about the whys of this choice. Looking at the data of this survey, no specific prediction could be done, except that – considering also the high position of the food sector in the second graph – respondents could have perceived as unsafe to buy BBPs in such sector.

²³ Thinking to the issue of the *fast fashion*, also the fashion and textile sector could be addressed by the consequences of a short use of its products.

Sectors – Highlights

- Generally, respondents are open to buy BBPs, regardless of the sector;
- The most preferred sectors (packaging, single-use products, food, and fashion and textile) are the ones in which the sustainability topics and the environmental impacts are more discussed;
- The most preferred sectors are the ones well-known by consumers (also in terms of environmental impacts) and in which they are probably already making use of BBPs;
- However, some preferences could be expressed due to some confusions on the terminology;
- Sectors in which respondents are willing to buy BBPs are generally not offering consumer durable good; at the opposite, respondents are more sceptics in buying them in sectors like automotive and constructions;
- Despite the large use that pharma & nutraceutical industries already (or potentially can) do of BBPs, in this sector respondents are less open to buy such products.

4.6. Labels

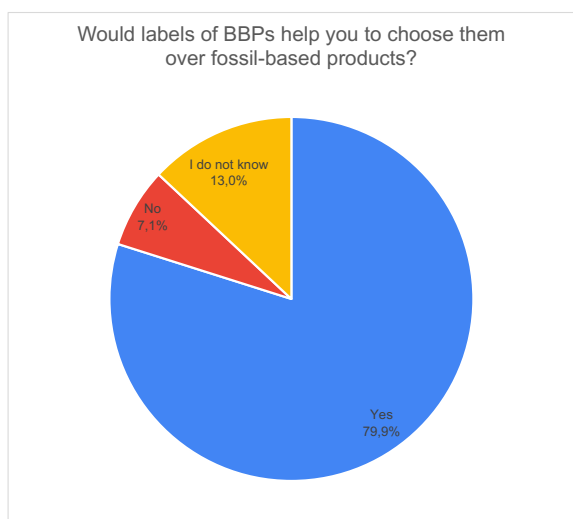


Figure 40 - Influence of labels in choosing a BBP - all

The survey highlighted that – **with no doubt – the labels are able to guide consumers toward the purchase of BBPs**. Indeed, the large majority of respondents (79,9%) largely agreed on this, with no substantial differences between people working or not in the sector.

The only aspect that should be highlighted on this point – before to analyse what respondents wants to find on labels – is the difference in the approach that males and females respondents have about the utility of labels.

Indeed, Figure 41 shows that, in general, **female participants in the survey believe that labels could influence them in choosing a BBP rather than a fossil-based product**

(82,3%), meanwhile male respondents have a larger share of people that would not be influence by labels (11,7%), that, anyhow, is smaller than the one registered among people that preferred to not express the gender (19,4%).

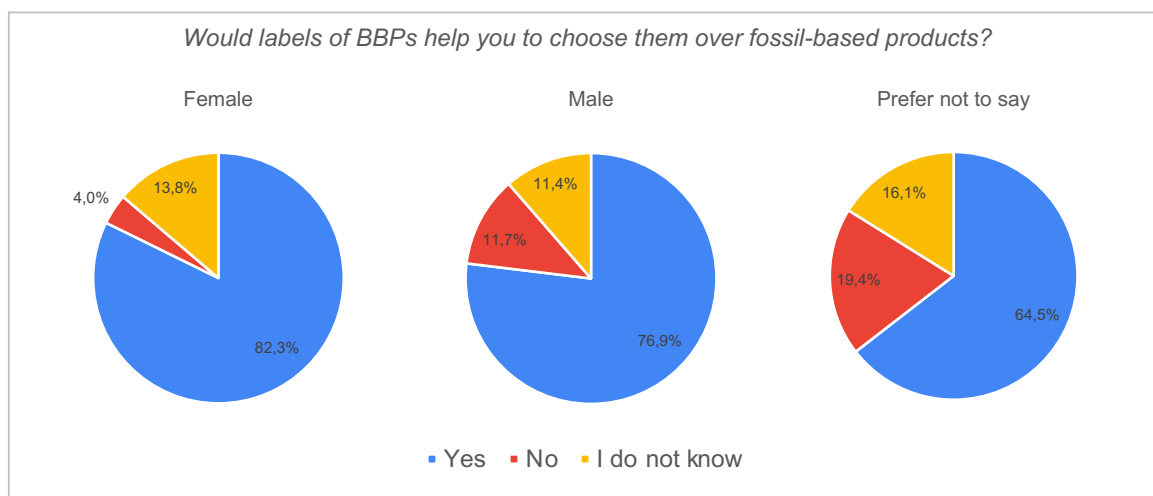


Figure 41 - Influence of labels in choosing a BBP - gender (all)

Starting from the fact that labels can guide consumers towards BBPs, it is interesting to observe what they would find on them. The Figure 42, that take into account all replies collected by the survey²⁴, highlight that **respondents generally would receive information on two aspects: the amount of bio-based content used in the product and on its end life**. These findings were also anticipated in part by the Figure 33 in §4.4.

The first option was chosen by the 25,6%, however, **one third of participants in the survey would know more about what to do with the products when it is time to dispose them**,

²⁴ No particular differences were registered in considering the data with the exclusion of people working in the bioeconomy sector.

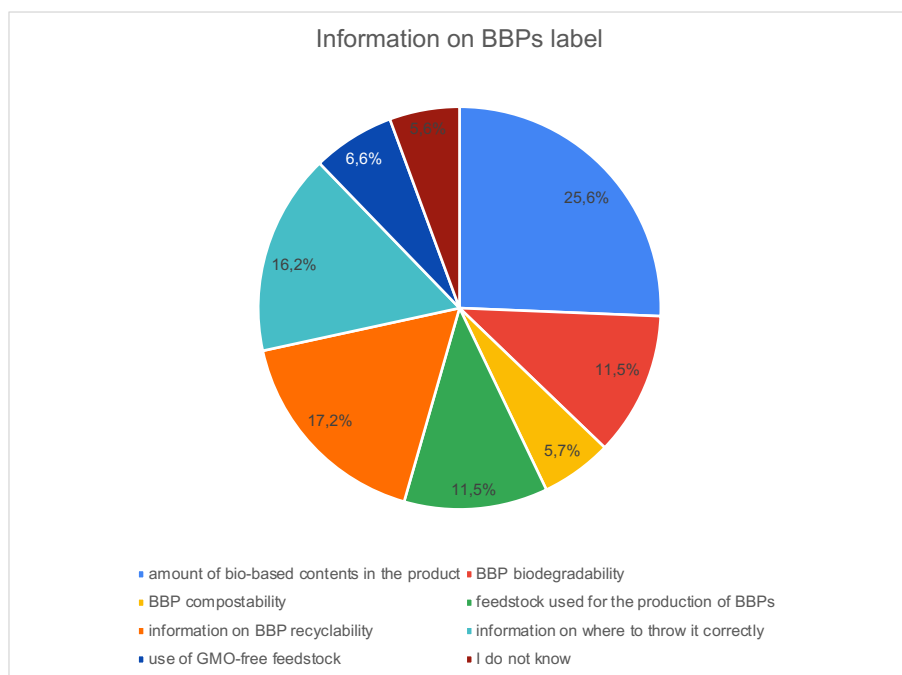


Figure 42 – Respondents' request of information on BBPs on labels - all

since the 17,2% wants information on recyclability and the 16,2% wants to know where to throw it correctly. Again, it seems that respondents are paying a lot of attention to topics related to products sustainability. In addition, it seems that participants in the survey are thinking under a perspective of circularity: asking information on the end life products, they are indeed interested in

guaranteeing a correct disposal in order to not reduce the quality of waste and allow a better reuse of materials.

Considering the replies for country (Table 8) and taking into account only the ones provided by people not working in the bioeconomy sector, **it is possible to observe how the amount of bio-based content in products is the most voted option in almost all countries covered by the survey.**

Country	amount of bio-based contents in the product	BBP biodegradability	BBP compostability	feedstock used for the production of BBPs	information on BBP recyclability	information on where to throw it correctly	use of GMO-free feedstock	I do not know	#Replies per Country
Belgium	25,0%	0,0%	25,0%	0,0%	25,0%	25,0%	0,0%	0,0%	4 (13)
Croatia	26,1%	8,0%	9,1%	10,2%	8,0%	19,3%	9,1%	10,2%	88 (93)
Estonia	20,4%	4,1%	6,1%	20,4%	18,4%	20,4%	2,0%	8,2%	49 (51)
France	0,0%	60,0%	0,0%	20,0%	0,0%	0,0%	20,0%	0,0%	5 (13)
Germany	24,6%	6,6%	4,9%	8,2%	13,1%	24,6%	4,9%	13,1%	61 (74)
Greece	11,9%	6,0%	3,0%	13,4%	26,9%	19,4%	16,4%	3,0%	67 (72)
Hungary	50,0%	20,0%	0,0%	10,0%	10,0%	10,0%	0,0%	0,0%	10 (16)
Italy	19,7%	10,6%	5,3%	12,2%	27,1%	14,4%	6,9%	3,7%	188 (230)
Portugal	34,0%	13,4%	2,1%	10,3%	8,2%	10,3%	11,3%	10,3%	97 (105)
Slovakia	24,4%	17,1%	4,9%	9,8%	24,4%	7,3%	4,9%	7,3%	41 (42)
Spain	25,0%	20,3%	4,7%	10,9%	12,5%	15,6%	6,3%	4,7%	128 (157)
Netherlands	25,7%	8,1%	9,5%	5,4%	20,3%	25,7%	1,4%	4,1%	74 (78)
UK	17,6%	23,5%	5,9%	11,8%	5,9%	17,6%	5,9%	11,8%	17 (21)
EU	23,8%	11,7%	5,4%	11,0%	17,7%	16,8%	7,2%	6,5%	837 (986)
Third Countries	23,5%	29,4%	5,9%	5,9%	17,6%	11,8%	0,0%	5,9%	17 (28)
TOTAL	23,8%	12,1%	5,4%	10,9%	17,7%	16,7%	7,0%	6,4%	854 (993)

Table 8 – Respondents' request of information on BBPs on labels – replies per country (not working in bioeconomy)

Instead, respondents from Greece and Italy want to know more on the BBP recyclability: in addition, Greek participants to the survey do not seem to be so interested about the amount of bio-based content, preferring to be informed more on how to dispose them correctly (19,4%), the use of GMO-free feedstock (16,4%) the raw materials used for the BBPs production

(13,4%). Also in the replies from Portugal there was registered a higher share of respondents interested to be informed if the feedstock used are GMO-free or not (11,3%).

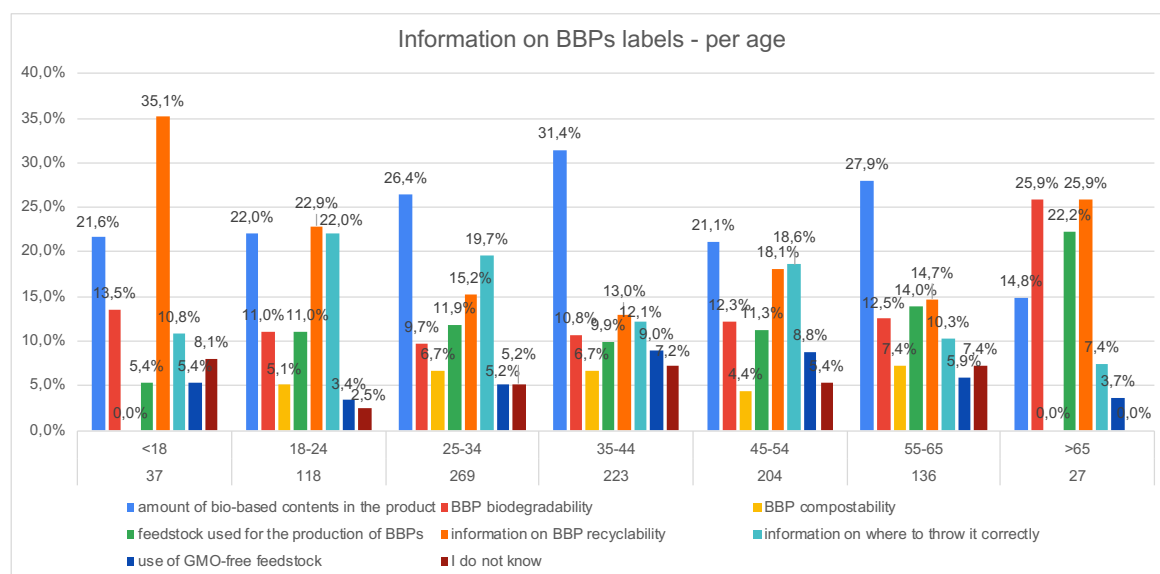


Figure 43 - Replies per age (all), including the number of respondents per each age group

Looking at the age of all respondents – since no significative difference emerged taking into account only people outside the “bioeconomy community” – it emerges that **Gen Z respondents are more interested to receive information about the products end life**: if the most voted options on this topic are considered together (how to dispose correctly BBPs and information on their recyclability), they would count around the 45% in both age groups, with a strong predominance on the recyclability among teenagers (35,1%). Instead, respondents from 25 to 65 tears are more interested about the amount of bio-based content, with the highest percentage registered in the 35-44 age group (31,4%): however, as happened in previous paragraph, it is possible to observe a wide variety of opinions in the 45-55 age group.

Completely different opinions were registered in the elders. Indeed, they are more interested to have information about the biodegradability of BBPs (25,9%, that is also higher – 29,2% - if only replies from people not working in the bioeconomy are considered). Moreover, they are the only ones to show a certain interest for the feedstock used for BBPs (22,2%), meanwhile in the other age groups it registered a lower interest (around the 11%).

Labels – Highlights

- Respondents strongly agree that labels could influence them in choosing a BBP rather than a fossil-based product;
- Participants of the survey generally would find on labels the amount of bio-based content used in the product and know more on its end-of-life (information on its recyclability and how to dispose it correctly);
- *Gen Z* respondents are generally more interested on products' end-of-life information; meanwhile, elders prefer know more about the biodegradability of the products.

4.7. Information on BBPs

The last question of the survey aimed to assess from which actor and media respondents would be informed about the bioeconomy and the BBPs. As already explained in §3, since the question was designed using the multiple choices format – and respondents had up to three votes to express – it is not possible to analyse the replies received according to the age or other indicators of participants to the survey. Results considering replies collected by each language version are not showed in this paragraph but are available in Annex 6.2.

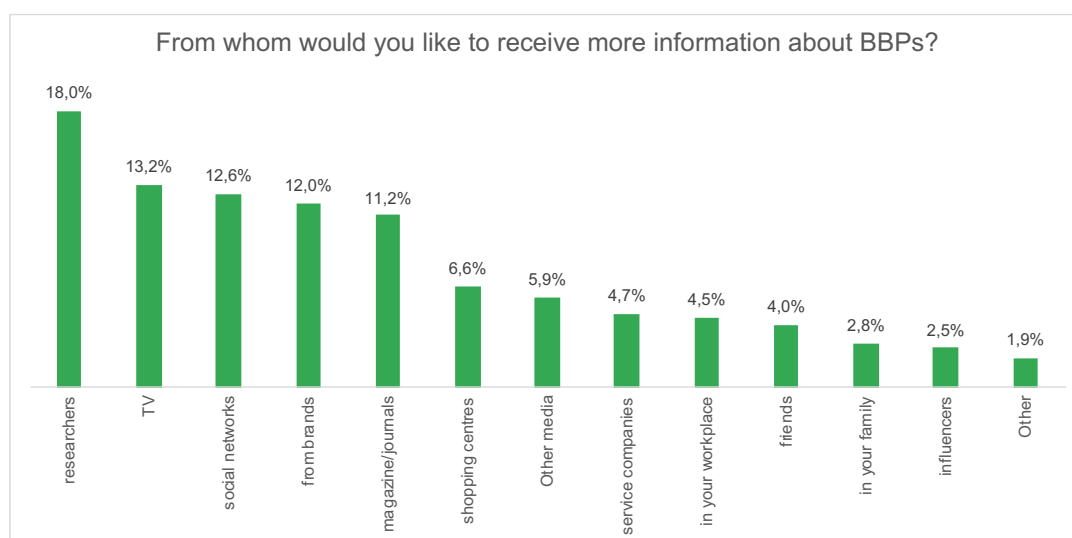


Figure 44 - % of channels and actors from whom respondents would be informed about BBPs

First of all, it emerges that **respondents would be informed by researchers through TV and social networks**. Looking at data, it seems that the experts working in the field are considered the most suitable to share the knowledge they have about BBPs. However, the reader must remember that around the 8% of the respondents are probably researchers, as well as that 139 participants (13,8%) are students: considering this, a relevant share of participants is somehow close with the research and academia sector, aspect that could have biased the replies provided.

In any case, it is interesting to observe that the second actor identified – in fourth position – is the brand owner (12%): despite some concerns about greenwashing practices highlighted in previous questions, it seems that respondents trust also in big private companies, the ones that are directly talking with them through the market. Given this, it could mean **that brand owners could enrich their marketing communication campaign with additional information about their BBPs and consumers would pay attention to their messages**.

Having a look at the communication channels, it seems that respondents continue to prefer traditional media such as the television (13,2%) or magazine and journals (11,6%). However, the social media collected the (12,6%) of preferences and follow closely the TV: it is curious to note that influencers – that emerged and are working exclusively in the social media – collected just the 2,5% of votes and is second to last in the rank.

Information on BBPs – Highlights

- Respondents prefer to be informed on BBPs by researchers and through TV and social networks;
- According to the results, brand owners could enrich their marketing communication campaign with additional information about their BBPs and consumers would pay attention to their messages

5. Recommendations and actions suggested

Starting from the main findings highlighted in the previous chapter, some of the key facts and conclusions that emerged from the analysis are listed below. Therefore, we have identified per key finding a set of specific actions and identified possible stakeholders that should be involved, as presented below. The recommendations presented were consolidated taking into account also results generated by other Biobridges activities and reports, in particular the document *Improving the public acceptance of bio-based products and processes at regional and local level*²⁵.

Misunderstood of the terminology

- Bioeconomy & bio-based products are terms unknown or less known by the large public; these terms are also frequently confused with other meanings (e.g., organic or biodegradable products);
- Circular economy and sustainability are topics more known by the large public, also thanks to the current public debate on specific topics (e.g., the climate change); meanwhile, *bioeconomy* and *bio-based* are terms that are often confused with these or not known at all;

>> PROPOSED ACTIONS:

- Create a “**Glossary of the Bioeconomy**”, presenting scientific and standard definitions using a comprehensible language to be disseminated among the large public with different activities (awareness campaigns, educational activities in schools, malls, etc.);
- Create visual / graphical campaigns to explain terms and to avoid misunderstandings, for instance continuing the work started with the educational cards designed by the [Biovoices project](#).
- Create books, videos, cartoons or games that talk about the bioeconomy in an easy and understandable format, especially targeting the young generations.

Lower awareness of bioeconomy and BBPs in youngsters and elders

- Young people are open to sustainability but generally confuse bioeconomy and circular economy;
- Young people are not aware of bioeconomy and BBPs, but they presume they can recognize them correctly when they shop
- Older people are not as familiar with the bioeconomy and BBPs

>> PROPOSED ACTIONS²⁶:

- Realise massive communication campaigns designed differently with the specific age-target, involving researchers and brand owners, for instance:
 - Realise campaigns on TVs using aged testimonials;
 - Using social networks to promote the bioeconomy among youngsters;
 - Stimulate brands to include more information on the product when they advertise the products among *Gen Z* consumers;

²⁵ Kiresiewa, Gerdes, 2020, Biobridges project.

²⁶ *Ibidem*, in particular §3.1 *Improve knowledge, education and awareness on the bioeconomy*.

- Keep on exhibiting in science festivals and shows addressing the large public (e.g., the Researcher's Night) and/ organise/participate in new ones;
- Establish more collaborations between EU funded projects and initiatives promoting BBPs and the bioeconomy with journals and magazines explaining science to the large public.

Low perception of possible positive economic and social impacts generated by the bioeconomy

- People are more interested in sustainability and environmental impacts generated by the BBPs;
- Even if strongly promoted by policy makers, potential economic impacts are not perceived by consumers (for instance, the possibility to create new jobs, the development of new technologies, etc.).

>> PROPOSED ACTIONS:

- Enable a broader societal discussion on sustainability issues associated with the bioeconomy²⁷;
- Show success stories and present data to the large public of positive economic impacts generated by the bioeconomy;
- Organise awareness campaigns to explain the other potential benefits (in addition to the environmental ones), specifically addressing different potential targets, for instance:
 - Primary producers, in order to explain how valorise unexploited resources that could enable them to increase their incomes;
 - Policy makers, to stimulate them to boost the rural development through the definition of strategies and the investment of public resources (in particular, the ones coming from the European Regional Development Fund - ERDF);
 - Unemployed people, to explain new possible opportunities;
 - Young generations, to guide them towards educational and career paths that could develop their skills for future jobs in the sector.

Request for more informative labels

- Labels can definitively guide consumers to choose BBPs instead of fossil-based ones;
- Information on BBPs – that could be provided also through labels – are more effective in motivating consumers choices rather than a reduction of the products price;
- Consumers ask to be informed through labels regarding the raw materials used for creating the BBP and the products' end-of-life.

>> PROPOSED ACTIONS:

- Further invest in the standardisation and labelling of bio-based products (preferably on a European level)²⁸;
- Create a more informative and standard labelling (particularly with regards to the materials used for the BBPs and their end-of-life);

²⁷ Ibidem, p.12

²⁸ Ibidem.

- Imposing to producers and brands to provide specific information (e.g., on the amount of the bio-based material used) in the label, improving the current EU legislation;
- Define a recognisable label that allows that BBPs to be:
 - Simply recognised by all when consumers shop;
 - Not confused with other properties of the product (e.g., compostability, biodegradability, etc.) or with other typologies (for instance, the organic products).

Motivations for increasing the purchase of BBPs

- Price is an obstacle, but the large majority of respondents are available to pay more (in particular up to 5%) and there are actions motivating more consumers than a price reduction (e.g., providing more information on BBPs);
- Environmental issues and sustainability aspects are pushing people towards buying BBPs (and more sustainable products in general) and this is particularly true for young people;

>> PROPOSED ACTIONS

- Focus commercial campaigns on the positive impacts that BBPs can generate;
- Focus commercial campaigns on providing more information on BBPs, having in mind the existing differences among different categories (for instance, informing younger people more on the end-of-life of products);
- Improve the information provided in labels;
- Enrich information on sustainability with other information related to economic impact, innovation, the value chain, etc.;
- Retailers can introduce rewards and incentives (points collections, discounts, etc.) for consumers choosing the bio-based alternatives to fossil-based products;
- Policy makers can propose to establish financial incentives for consumers:
 - Tax reductions for those that buy BBPs;
 - Use post-pandemic recovery plans to incentive consumers to choose BBPs instead of fossil-based in different sectors (e.g., buying bio-based textile, choosing BBPs in refurbishment, etc.);
- Policy makers can inform/incentive brands to replace partially or totally their fossil-based products with bio-based alternatives;

Sectors

- Consumers are generally open to buy BBPs in all sectors rather than to exclude some of them; however, they prefer to buy the ones that are not consume durable goods;
- More known sectors and products by consumers - such as packaging, single-use products, food, textile - are the ones in which people would buy BBPs (also because they confuse BBPs with products perceived as more sustainable);
- Consumers are sceptical of buying BBPs in some sectors and they would not buy them (for instance, pharma & nutraceutical), but consumers are probably already making a large use of BBPs without knowing it;

>> PROPOSED ACTIONS

- Show better the environmental impact that choosing BBPs could have on a specific sector, in order to increase their consumption;
- Explain that BBPs could be already (largely) normally used in sectors in which people are sceptical to buy, reassuring about possible risks;
- Investigate and better understand the reasons why people are not preferring to buy BBPs in some sectors, in order to identify new and more tailored actions.

6. Annex

6.1. Factsheet – Biobridges consultation







6.2. Figures & tables

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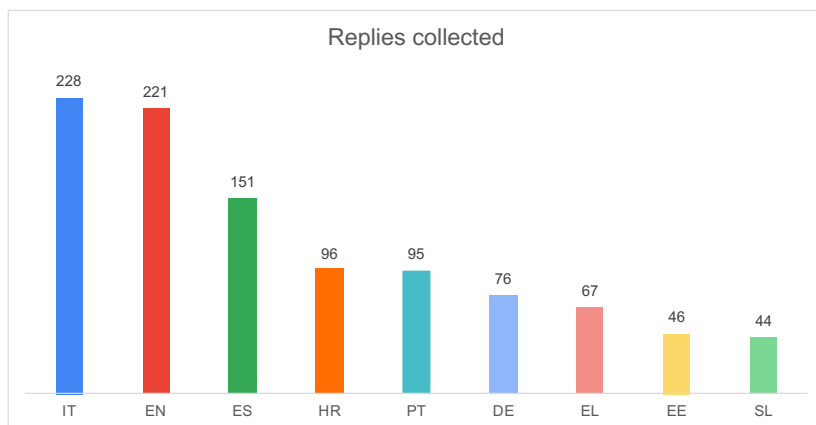
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6.2.1. Indicators



Annex 1 - Replies collected by each version of the survey

Are you working in the bioeconomy sector?

Are you working in the bioeconomy sector?		
Yes	160	15,8%
No	825	81,4%
I do not know	29	2,9%

Annex 2 - Respondents working or not in the bioeconomy sector



Annex 3 - Percentage and number of respondents working in the bioeconomy sector

Countries

Country	# Replies
Italy	230
Spain	157
Portugal	105
Croatia	93
The Netherlands	78
Germany	74
Greece	72
Estonia	51
Slovakia	42
United Kingdom	21
Hungary	16
France	13
Belgium	13
Austria	6
Czech Republic	6
Finland	4
Romania	3
Colombia	2
Canada	2
Brasil	2
United States of America	2
Ukraine	2
Serbia	2
Norway	2
Argentina	2
Sweden	1
Perú	1
Belarus	1
Russia	1
Australia	1
Armenia	1
Switzerland	1
Mexico	1
Tunisia	1
Slovenia	1
Indonesia	1
South Korea	1
New Zealand	1
Mauritius	1
TOTAL	1.014

Annex 4 - List of replies collected per country

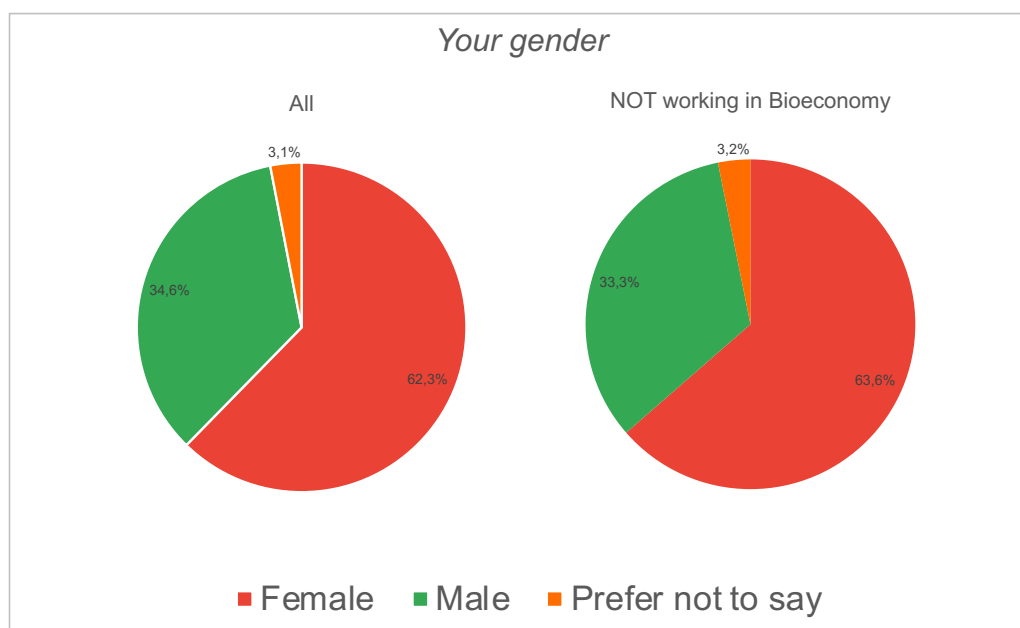
Country	All	NOT working in bioeconomy	% of NOT working in bioeconomy
Belgium	13	4	30,8%
Croatia	93	88	94,6%
Estonia	51	49	96,1%
France	13	5	38,5%
Germany	74	61	82,4%
Greece	72	67	93,1%
Hungary	16	10	62,5%
Italy	230	188	81,7%
Portugal	105	97	92,4%
Slovakia	42	41	97,6%
Spain	157	128	81,5%
The Netherlands	78	74	94,9%
United Kingdom	21	17	81,0%
Third Countries	28	17	60,7%
EU	986	837	84,9%

Annex 5 - % of people NOT working in bioeconomy in each country that collected more than 10 replies

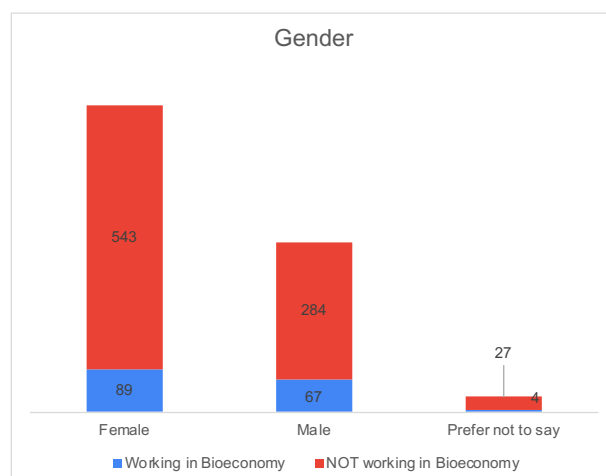
Gender

Your gender	Working in Bioeconomy	NOT working in Bioeconomy	Total
Female	89	543	632
Male	67	284	351
Prefer not to say	4	27	31

Annex 6 – Number of replies per gender



Annex 7 - % of replies per gender (all vs. NOT working in the bioeconomy sector)

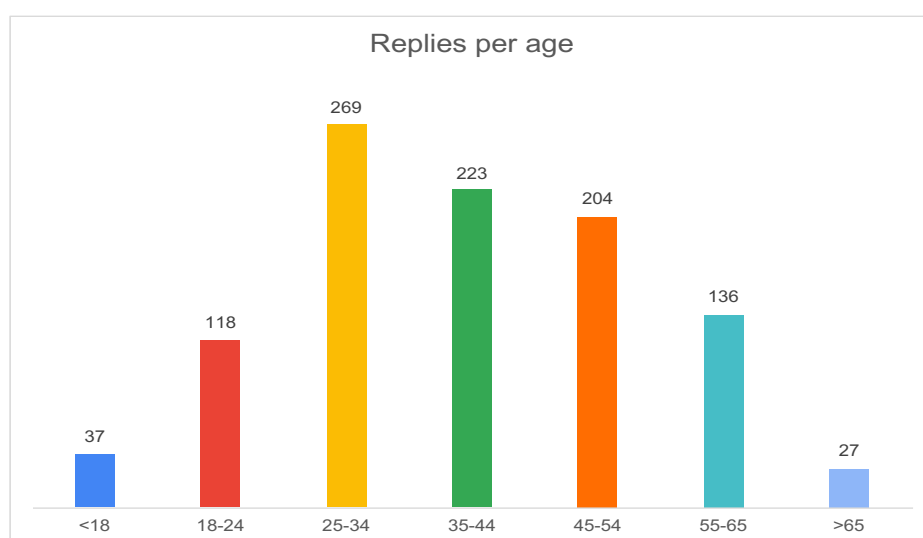


Annex 8 - Gender – number of respondents working or not in the bioeconomy sector

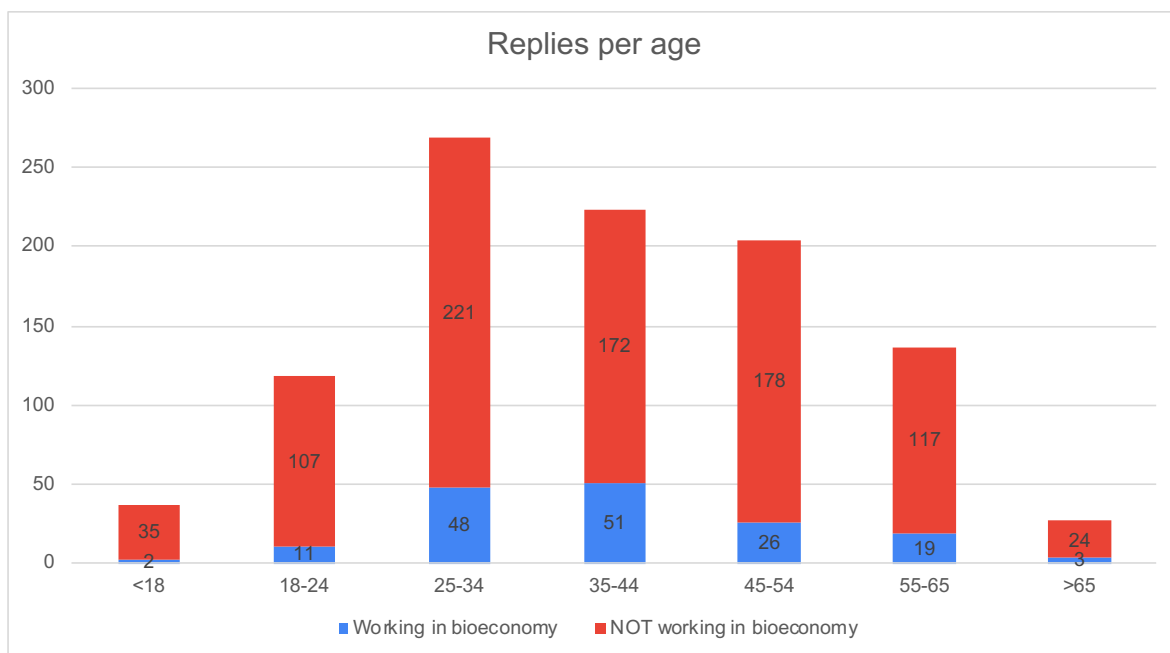
Age

Your age	Working in bioeconomy	NOT working in bioeconomy	Total
<18	2	35	37
18-24	11	107	118
25-34	48	221	269
35-44	51	172	223
45-54	26	178	204
55-65	19	117	136
>65	3	24	27

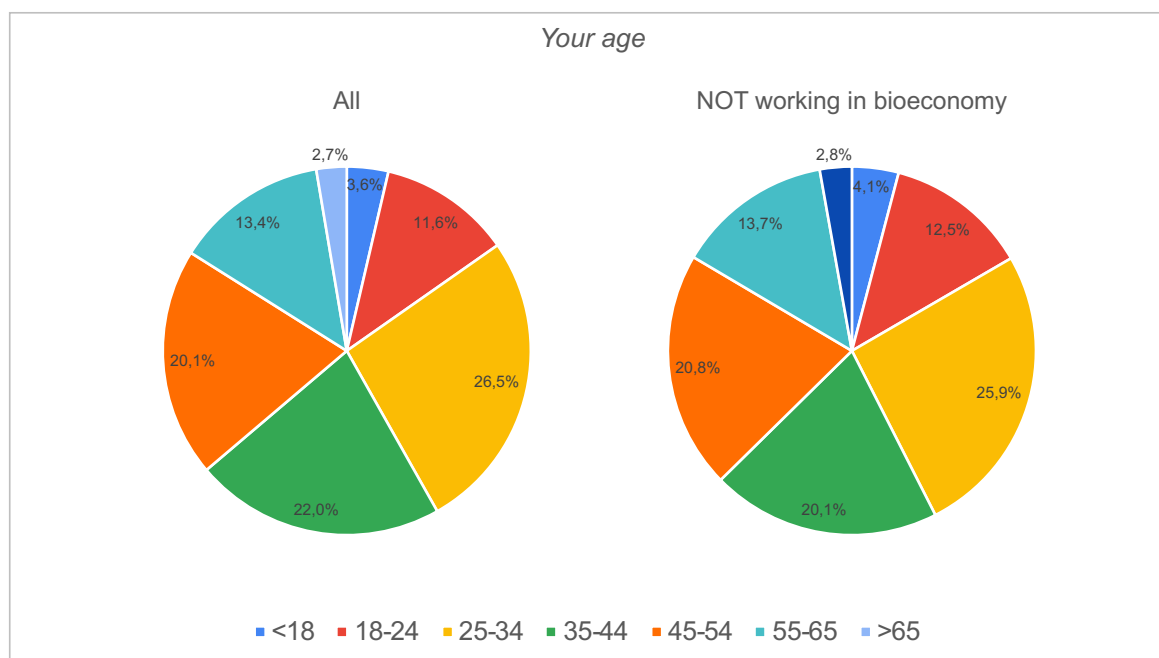
Annex 9 - Number of replies per age



Annex 10 - Replies per each age group (all)



Annex 11 – Age – number of respondents working or not in the bioeconomy sector

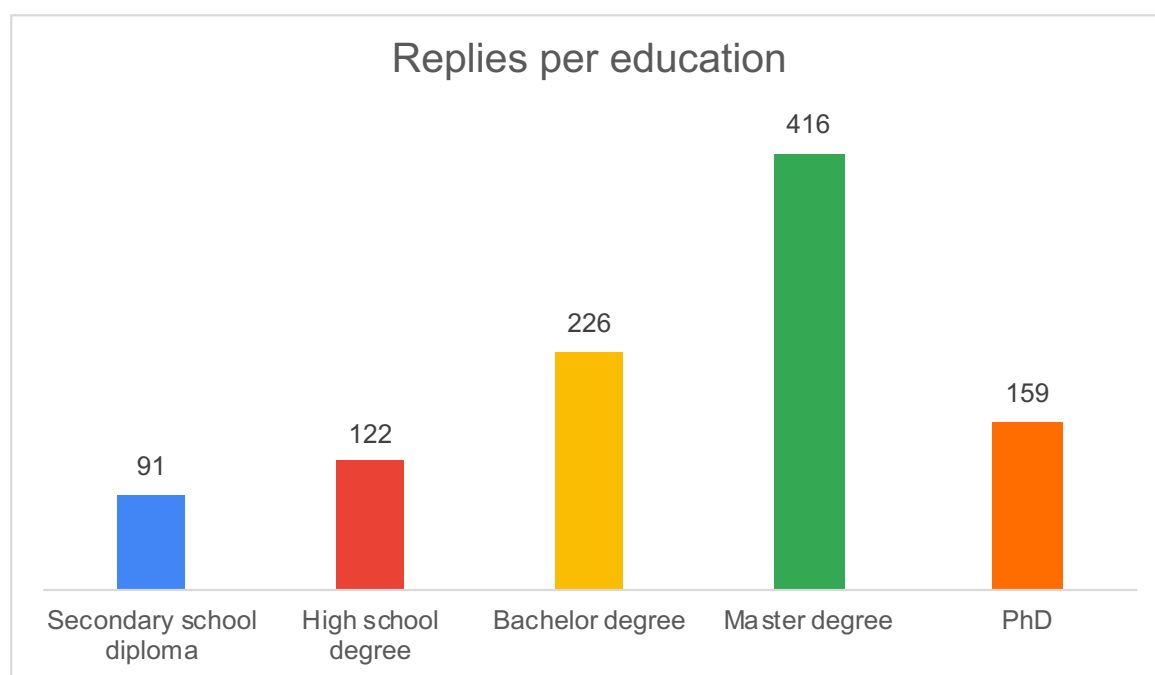


Annex 12 - % of replies per age (all vs. NOT working in the bioeconomy sector)

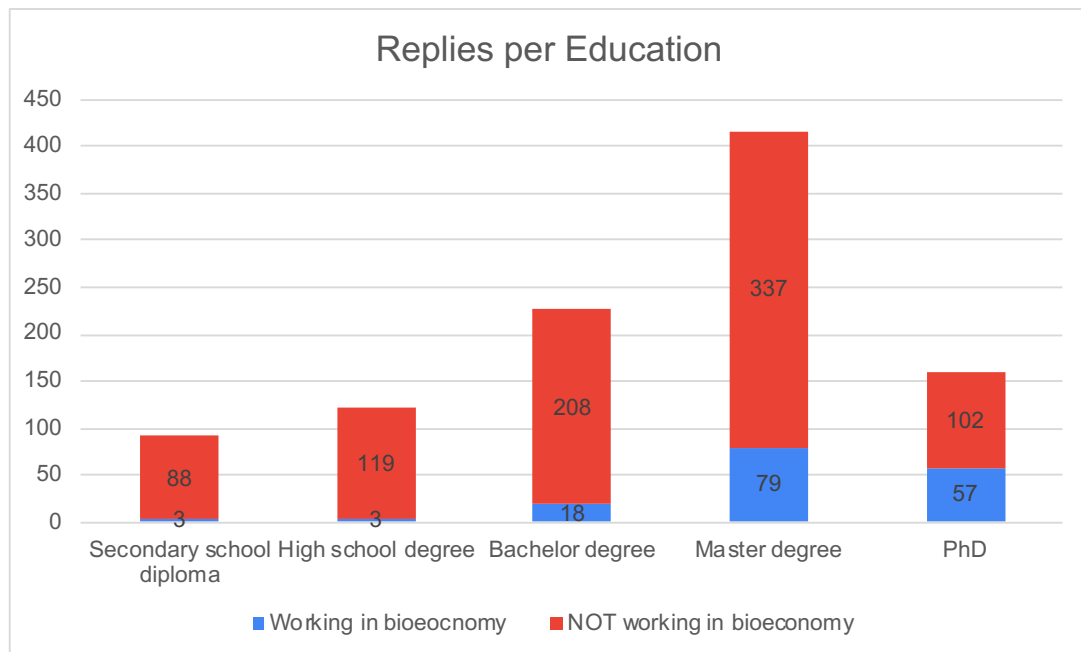
Education

Your education	Working in bioeconomy	NOT working in bioeconomy	Total
Secondary school diploma	3	88	91
High school degree	3	119	122
Bachelor degree	18	208	226
Master degree	79	337	416
PhD	57	102	159

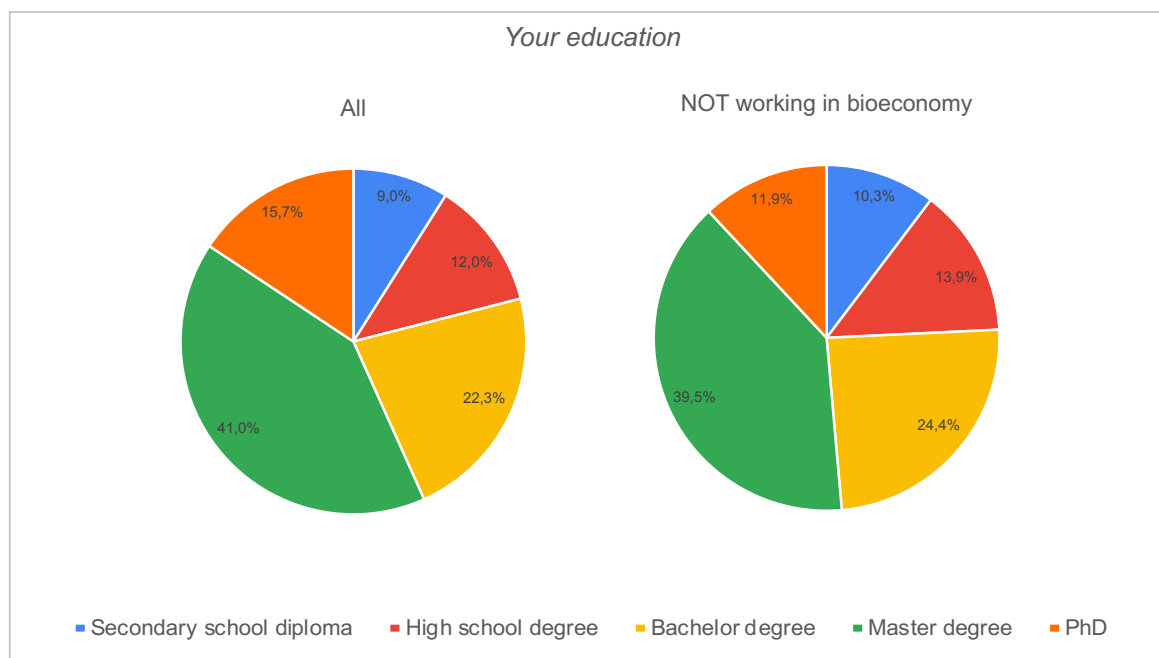
Annex 13 - Number of replies per education



Annex 14 - Replies per each education group (all)



Annex 15 – Education – number of respondents working or not in the bioeconomy sector

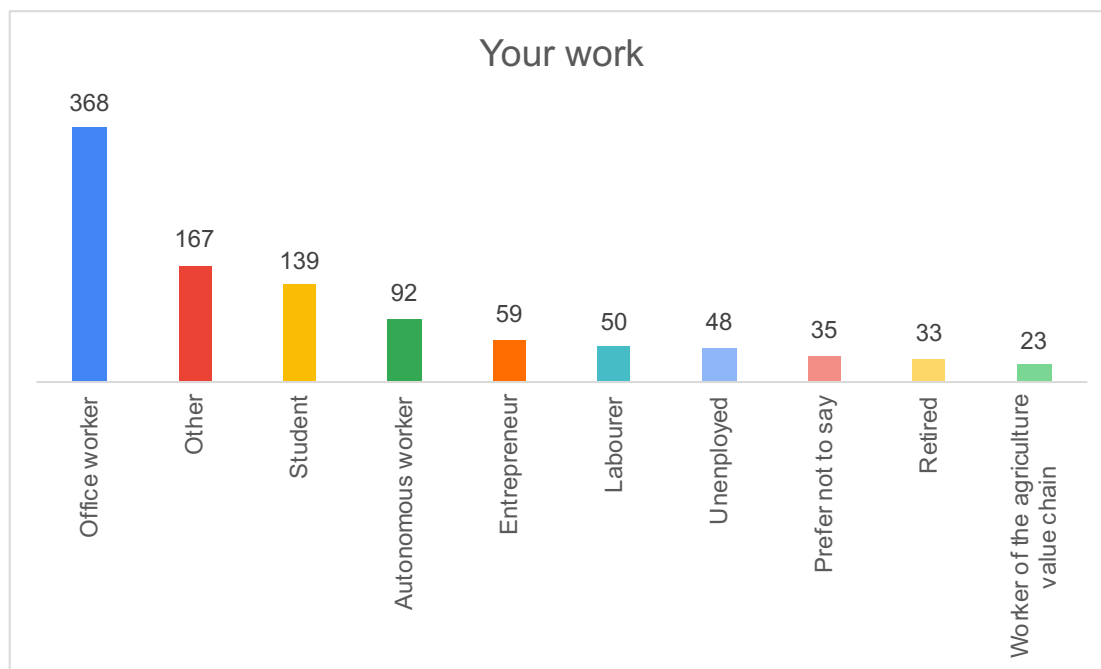


Annex 16 - % of replies per education (all vs. NOT working in the bioeconomy sector)

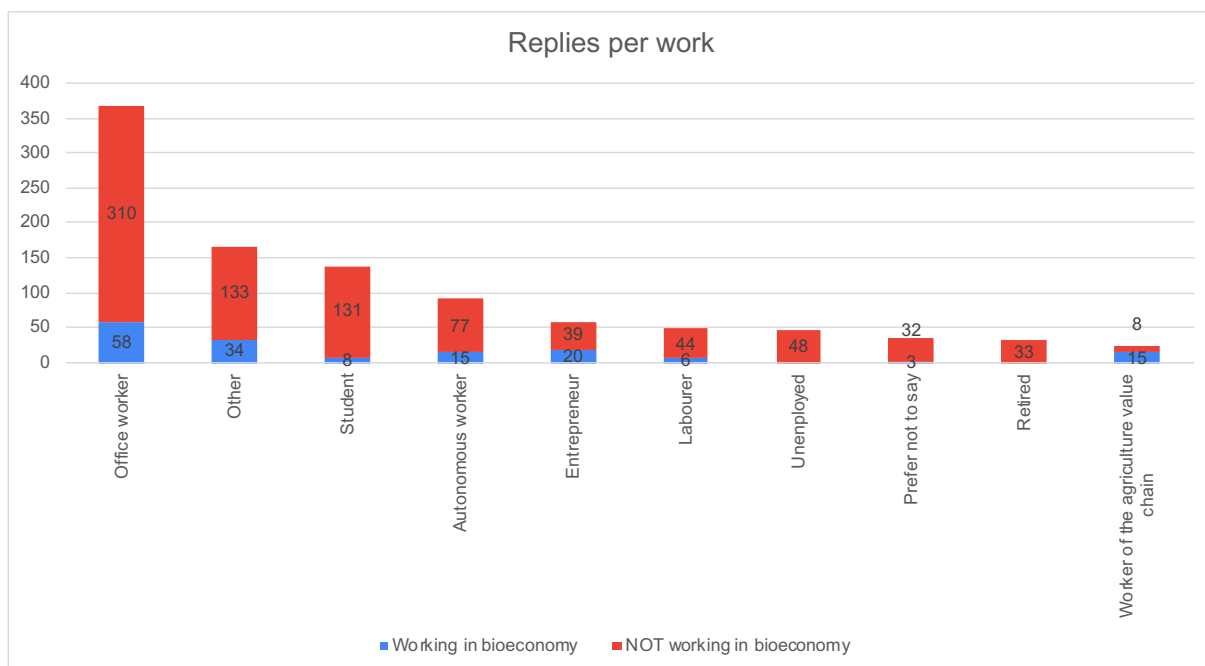
Work

Your work	Working in bioeconomy	NOT working in bioeconomy	Total
Office worker	58	310	368
Other	34	133	167
Student	8	131	139
Autonomous worker	15	77	92
Entrepreneur	20	39	59
Labourer	6	44	50
Unemployed	0	48	48
Prefer not to say	3	32	35
Retired	0	33	33
Worker of the agriculture value chain	15	8	23

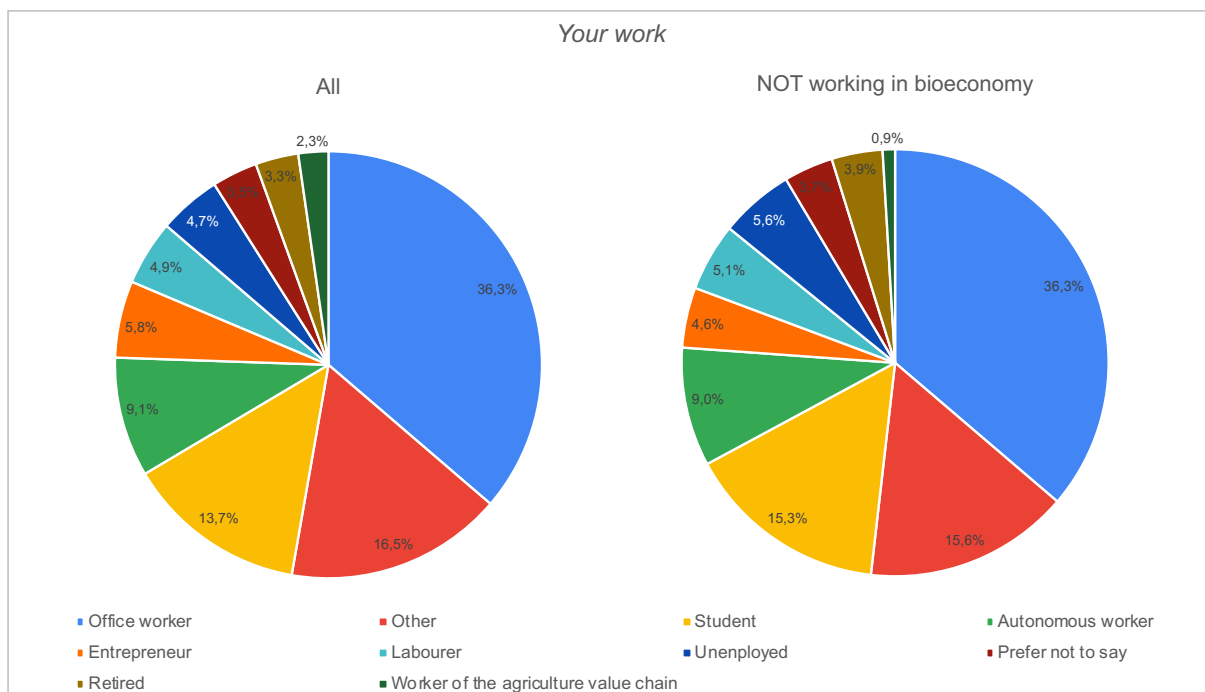
Annex 17 - Number of replies per work



Annex 18 - Replies per each work group (all)



Annex 19 - Work – number of respondents working or not in the bioeconomy sector

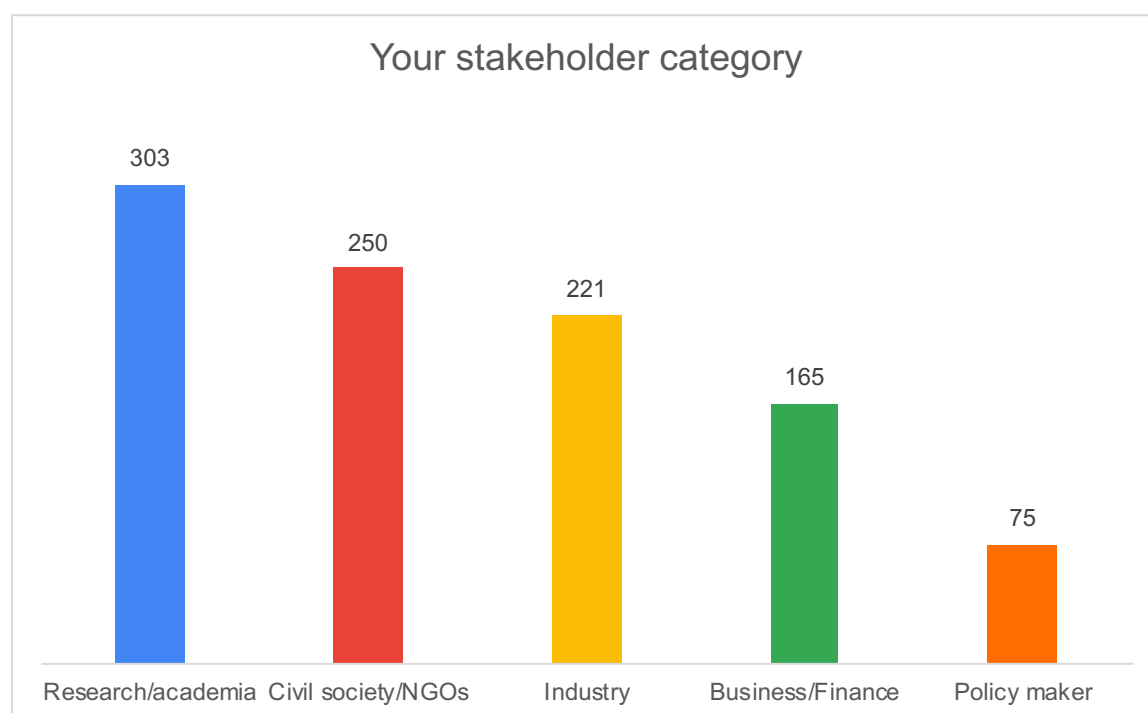


Annex 20 - % of replies per work (all vs. NOT working in the bioeconomy sector)

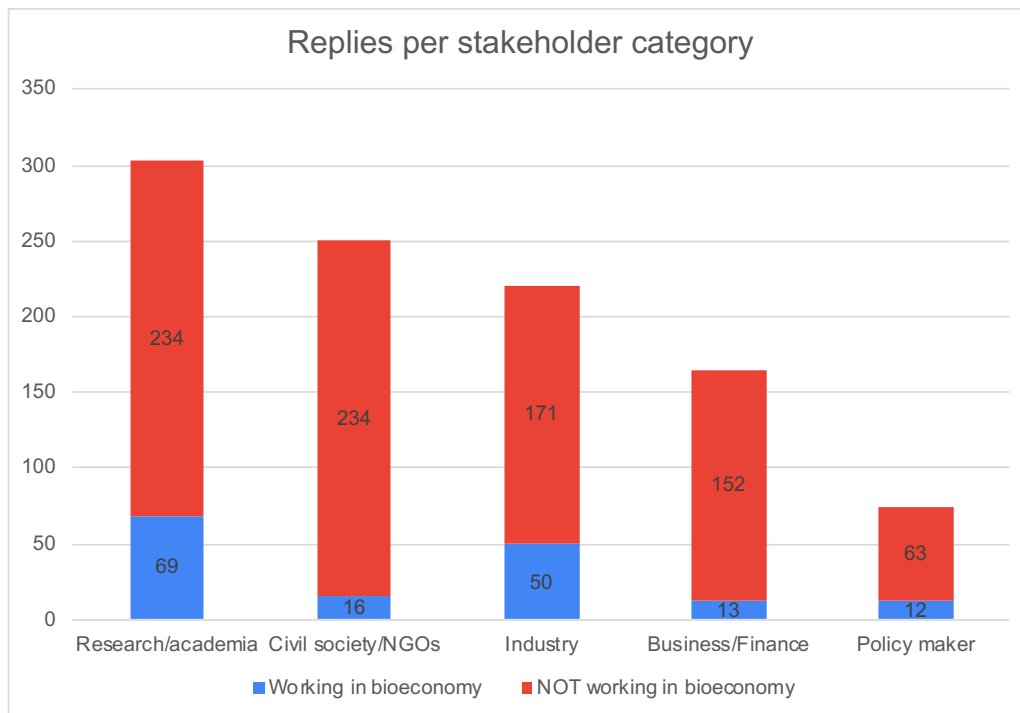
Stakeholder category

Your stakeholder typology	Working in bioeconomy	NOT working in bioeconomy	Total
Research/academia	69	234	303
Civil society/NGOs	16	234	250
Industry	50	171	221
Business/Finance	13	152	165
Policy maker	12	63	75

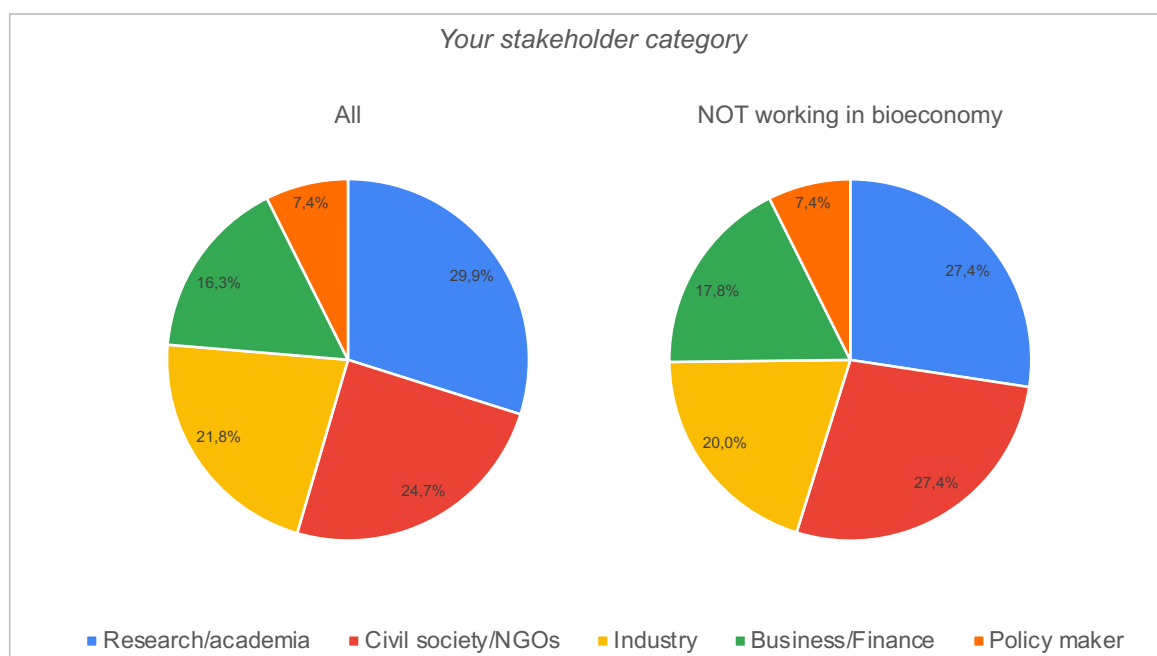
Annex 21 - Number of replies per stakeholder typology



Annex 22 - Replies per each stakeholder category group (all)



Annex 23 – Stakeholder category – number of respondents working or not in the bioeconomy sector



Annex 24 - % of replies per stakeholder category (all vs. NOT working in the bioeconomy sector)

Work vs. Stakeholder category

	Autonomous worker	Entrepreneur	Labourer	Office worker	Other	Prefer not to say	Retired	Student	Unemployed	Worker of the agriculture value chain	TOTAL - stakeholder category
Business/Finance	7,3%	14,5%	2,4%	58,2%	4,2%	1,2%	2,4%	7,3%	2,4%	0,0%	165
Civil society/NGOs	8,8%	2,4%	5,2%	26,4%	15,6%	6,4%	6,8%	16,8%	10,0%	1,6%	250
Industry	13,6%	10,4%	12,2%	39,8%	7,7%	3,6%	1,8%	1,8%	3,6%	5,4%	221
Policy maker	4,0%	0,0%	2,7%	58,7%	18,7%	1,3%	6,7%	2,7%	1,3%	4,0%	75
Research/academia	8,3%	2,0%	1,3%	24,4%	29,7%	2,6%	1,0%	26,1%	3,3%	1,3%	303
Total - Work	92	59	50	368	167	35	33	139	48	23	1.014

Annex 25 - % of replies per work in each stakeholder category

	Business Finance	Civil society NGOs	Industry	Policy maker	Research academia	TOTAL - Work
Autonomous worker	13,0%	23,9%	32,6%	3,3%	27,2%	92
Entrepreneur	40,7%	10,2%	39,0%	0,0%	10,2%	59
Labourer	8,0%	26,0%	54,0%	4,0%	8,0%	50
Office worker	26,1%	17,9%	23,9%	12,0%	20,1%	368
Other	4,2%	23,4%	10,2%	8,4%	53,9%	167
Prefer not to say	5,7%	45,7%	22,9%	2,9%	22,9%	35
Retired	12,1%	51,5%	12,1%	15,2%	9,1%	33
Student	8,6%	30,2%	2,9%	1,4%	56,8%	139
Unemployed	8,3%	52,1%	16,7%	2,1%	20,8%	48
Worker of the agriculture value chain	0,0%	17,4%	52,2%	13,0%	17,4%	23
TOTAL - stakeholder category	165	250	221	75	303	1.014

Annex 26 - % of replies per stakeholder category in each work group

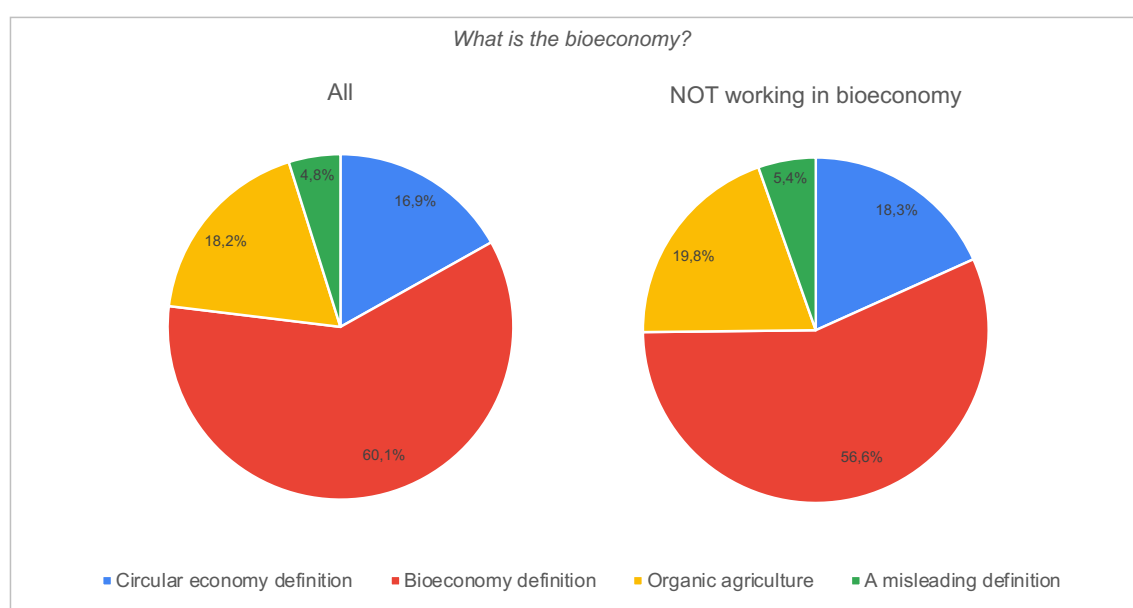
6.2.2. Question 1 – What is the bioeconomy?

Options (in bold the correct answer):

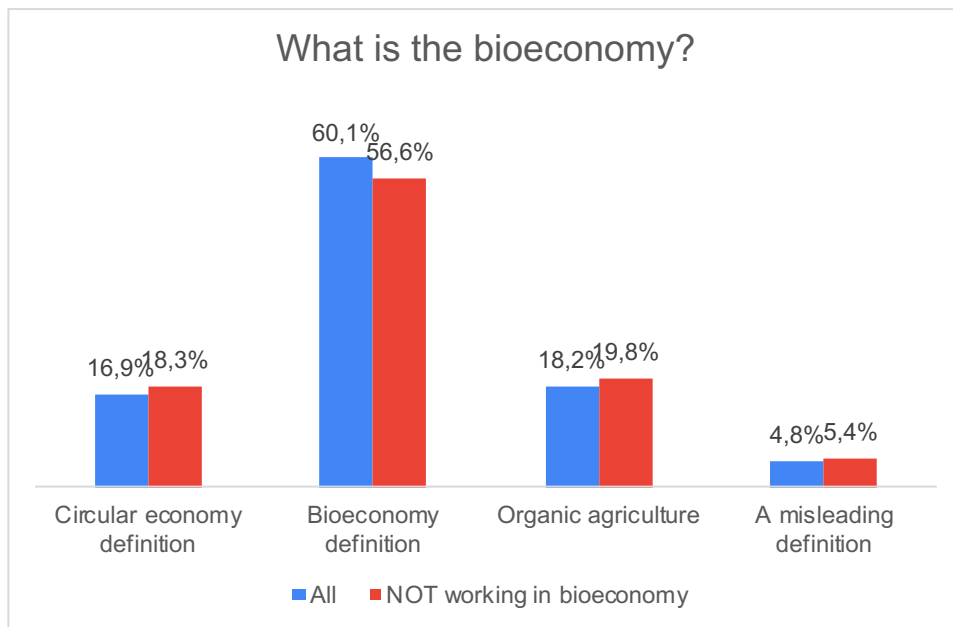
1. A model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible – Circular Economy definition, [European Parliament, 2015](#)
2. **The production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy** – Bioeconomy definition, [European Bioeconomy Strategy, 2012](#)
3. A holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. – Organic agriculture, [Food and Agriculture Organisation](#) of the United Nation
4. The crop, recovery and treatment of natural and biological resources to be used for producing renewable energy. – A misleading definition

What is the bioeconomy?	Working in bioeconomy	NOT working in bioeconomy	Total
1 - Circular economy definition	15	156	171
2 - Bioeconomy definition	126	483	609
3 - Organic agriculture	16	169	185
4 - A misleading definition	3	46	49

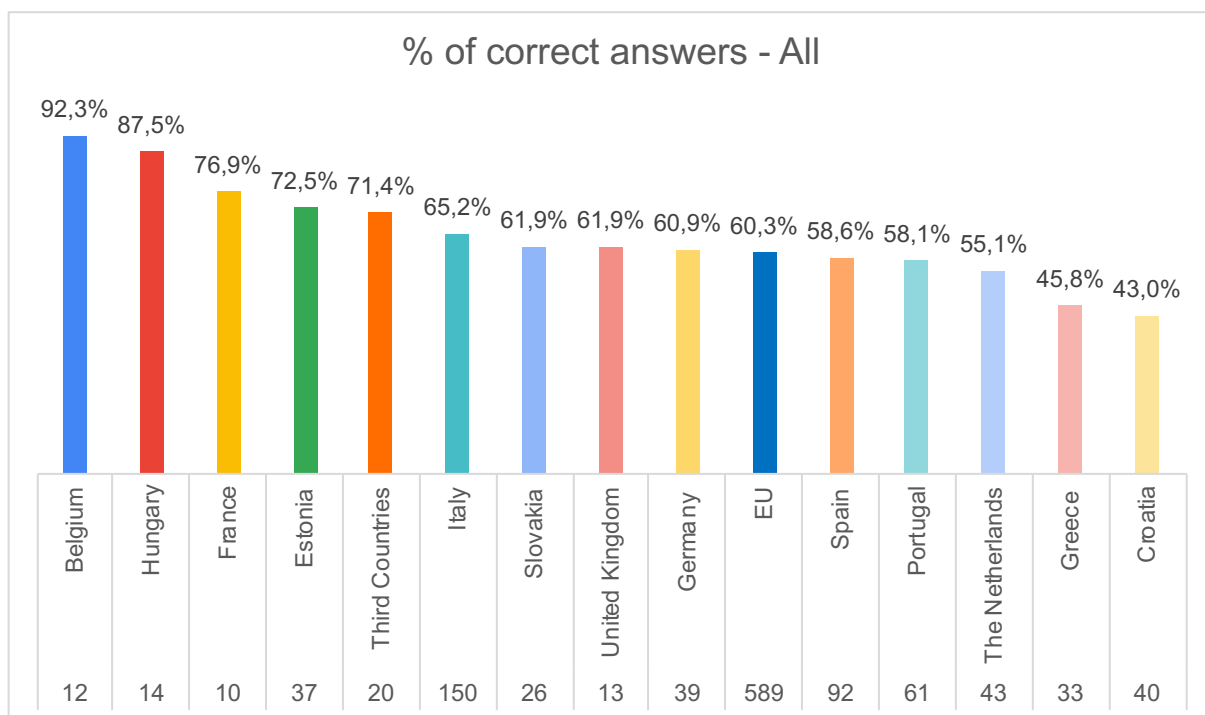
Annex 27 - Number of replies to the question "What is the bioeconomy?"



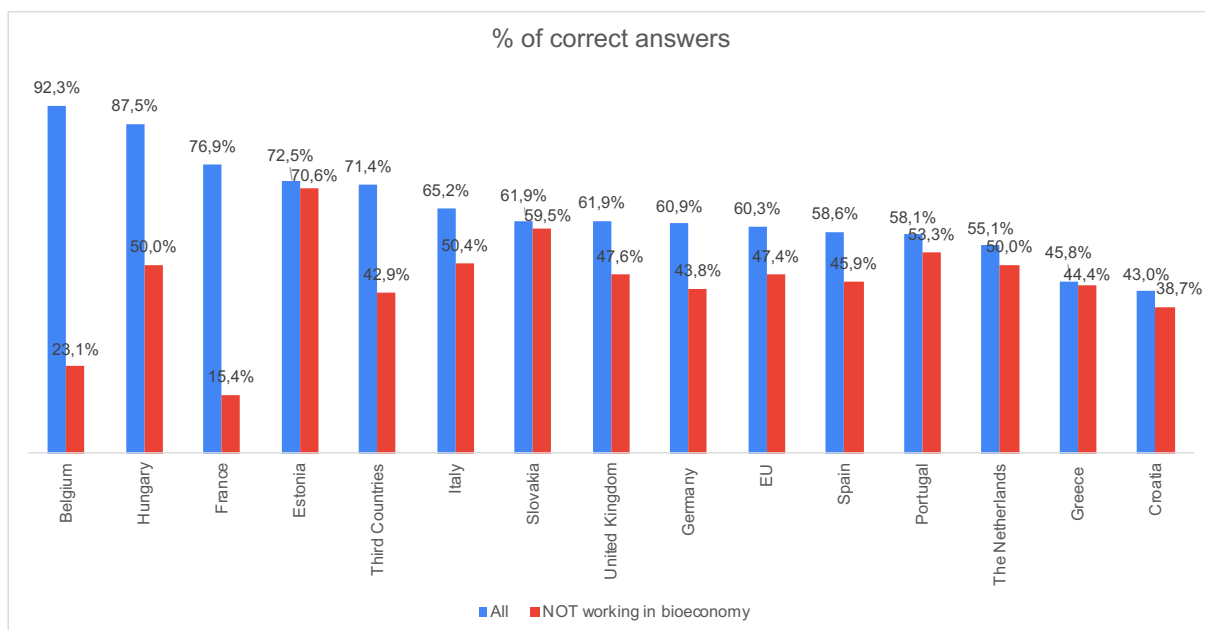
Annex 28 - % of replies to the question "What is the bioeconomy?" (all vs. NOT working in the bioeconomy sector)



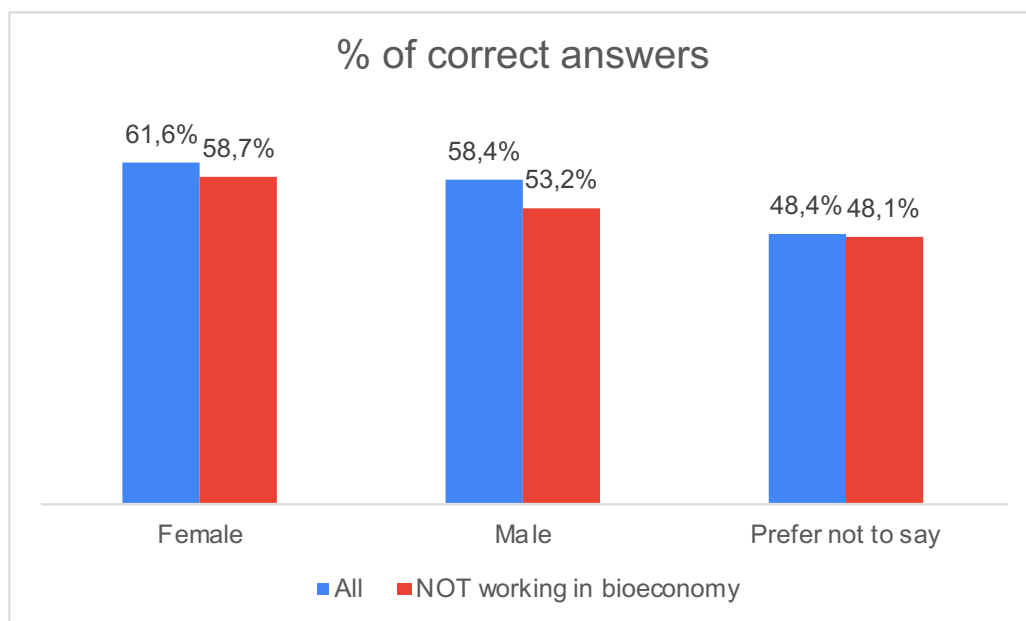
Annex 29 - % of replies to each option of the question "What is the bioeconomy?" (all vs. NOT working in the bioeconomy sector)



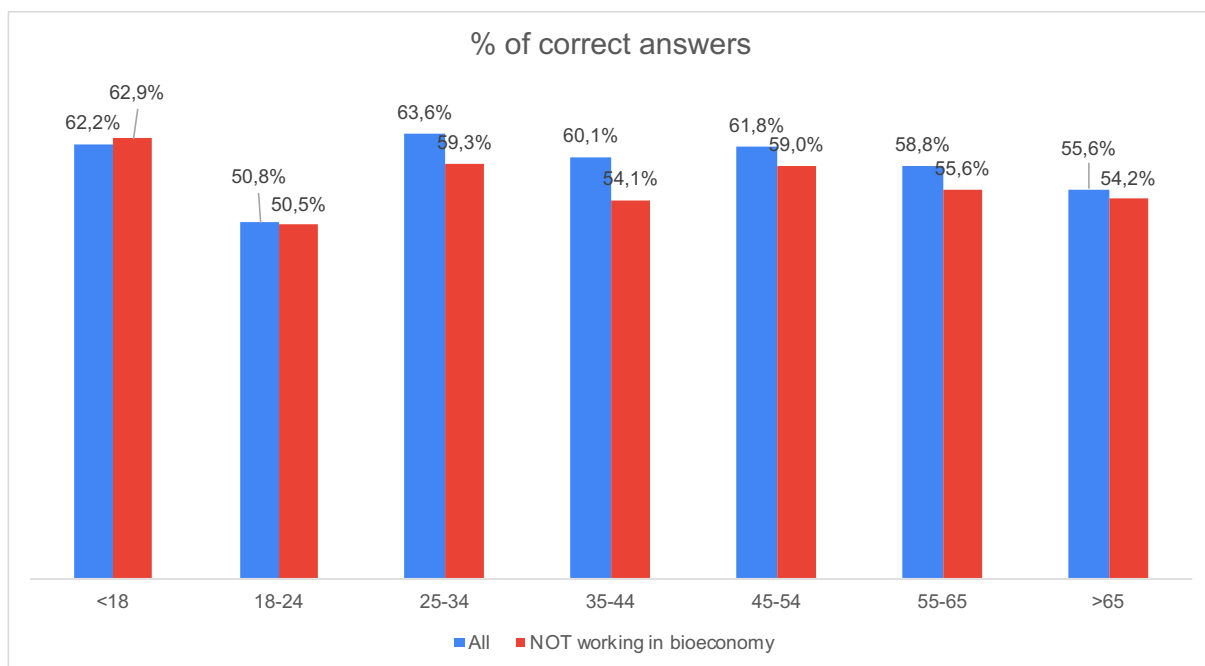
Annex 30 - % of correct answers per country (all)



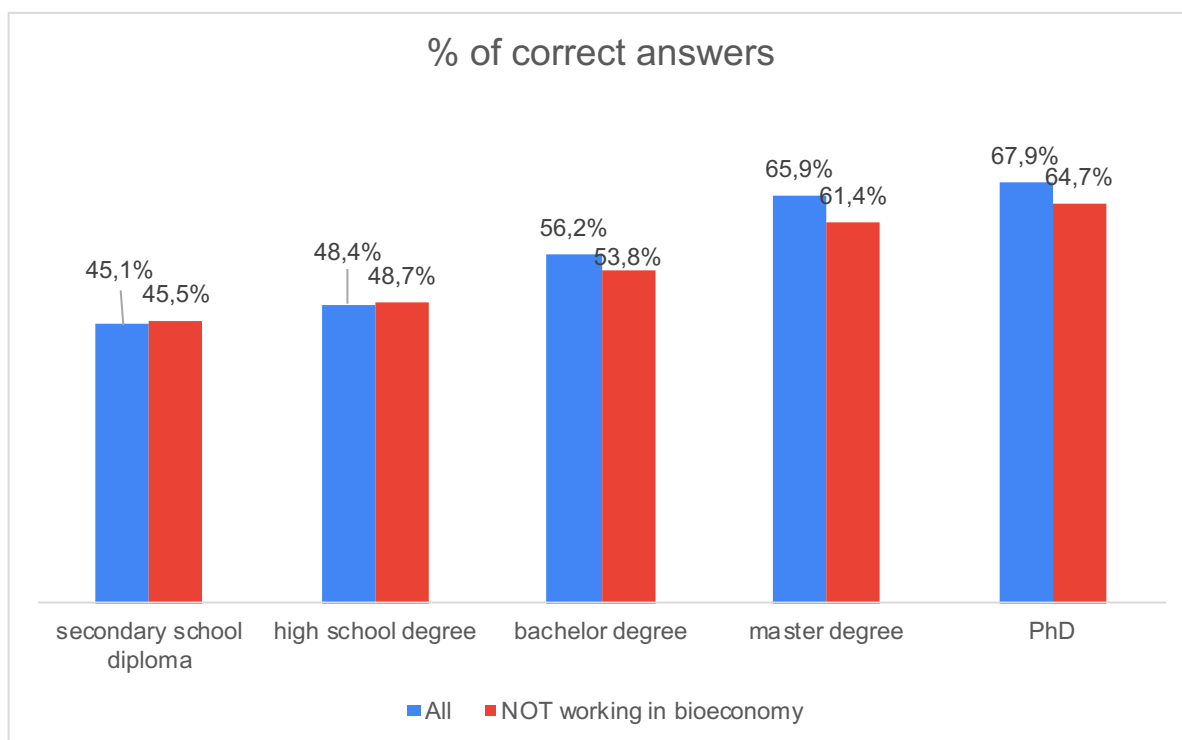
Annex 31 - % of correct answers per country (all vs. NOT working in the bioeconomy sector)



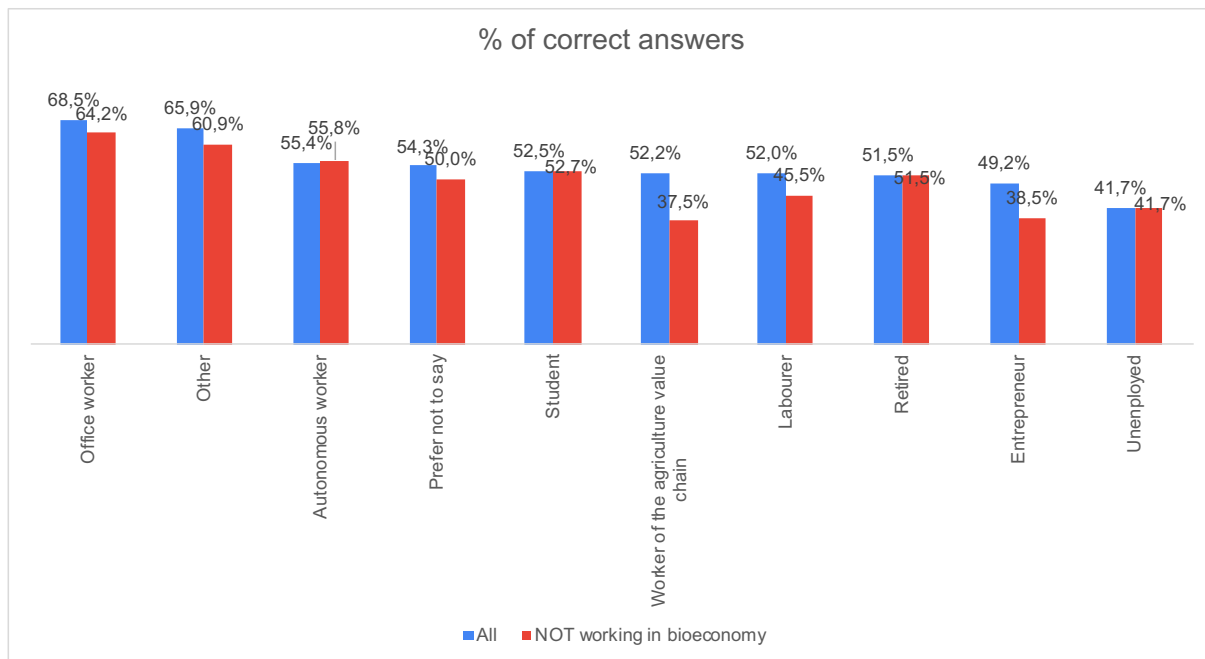
Annex 32 - % of correct answers per gender (all vs. NOT working in the bioeconomy sector)



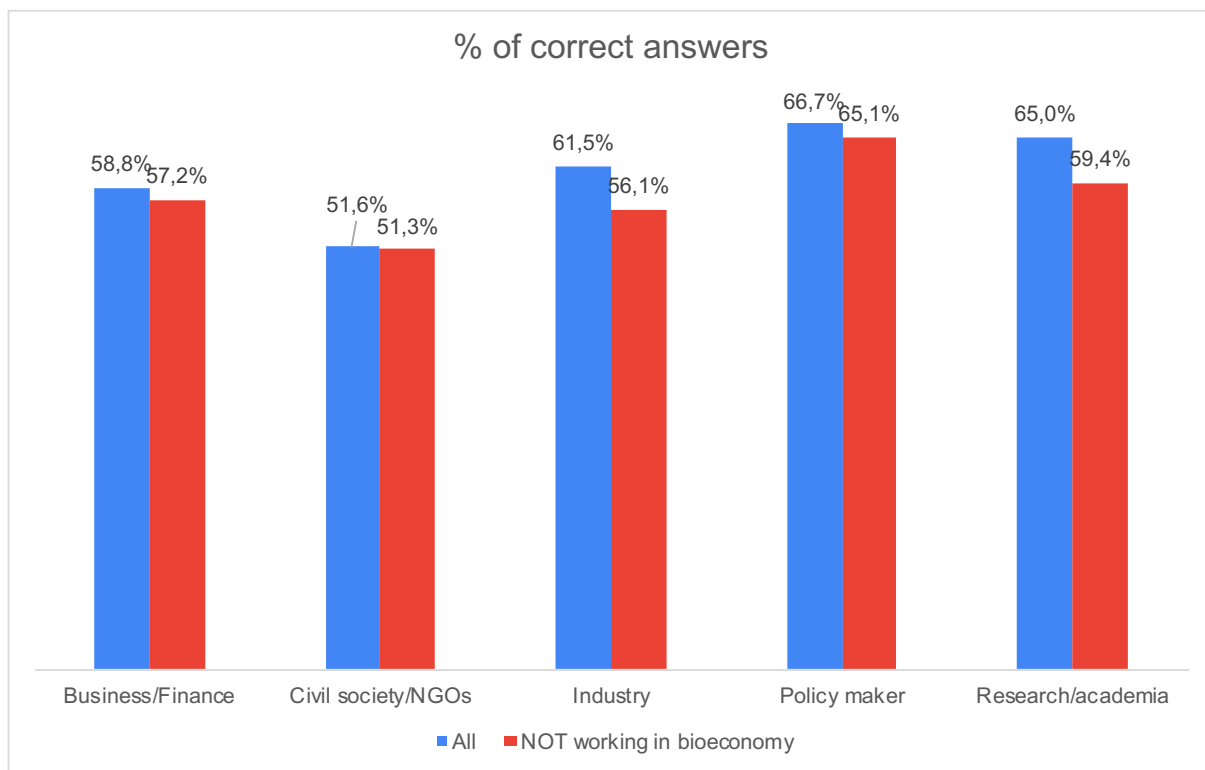
Annex 33 - % of correct answers per age (all vs. NOT working in the bioeconomy sector)



Annex 34 - % of correct answers per education (all vs. NOT working in the bioeconomy sector)



Annex 35 - % of correct answers per work (all vs. NOT working in the bioeconomy sector)



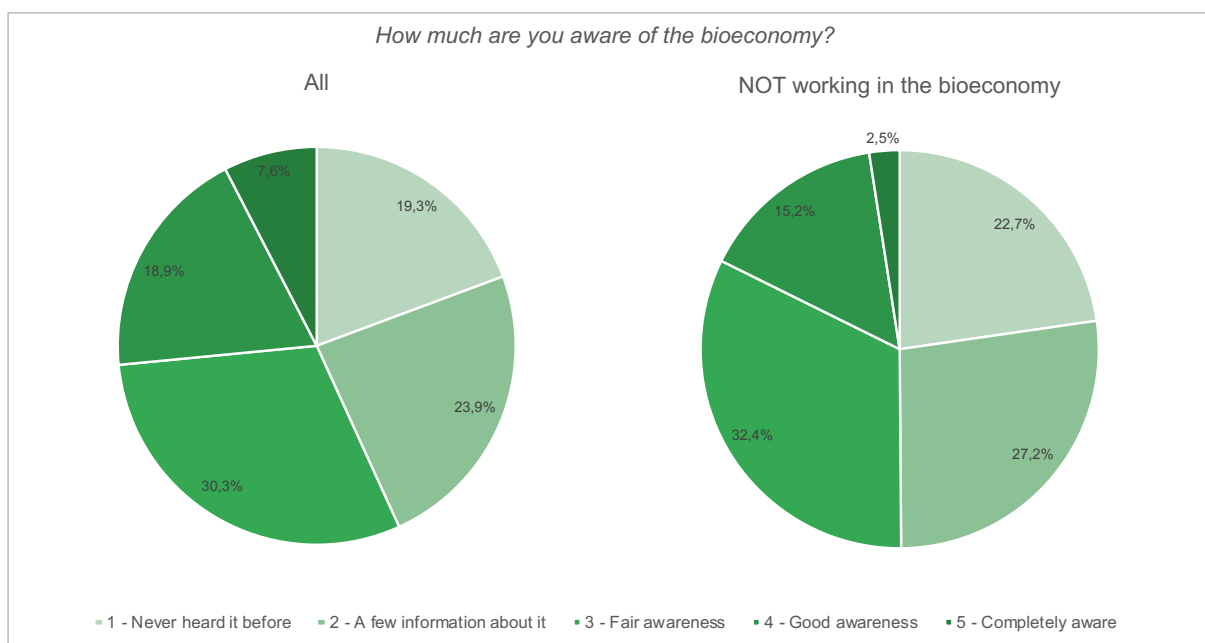
Annex 36 - % of correct answers per stakeholder category (all vs. NOT working in the bioeconomy sector)

6.2.3. Question 2 – Bioeconomy awareness

From 1 (I have never heard about it before) to 5 (I am completely aware, and I know about existing policies in my country and in Europe), how much are you aware of the bioeconomy?

How much are you aware of the bioeconomy?	Working in bioeconomy	NOT working in bioeconomy	Total
1 - Never heard it before	2	194	196
2 - A few information about it	10	232	242
3 - Fair awareness	30	277	307
4 - Good awareness	62	130	192
5 - Completely aware	56	21	77

Annex 37 - Number of replies to the question "How much are you aware of the bioeconomy?"



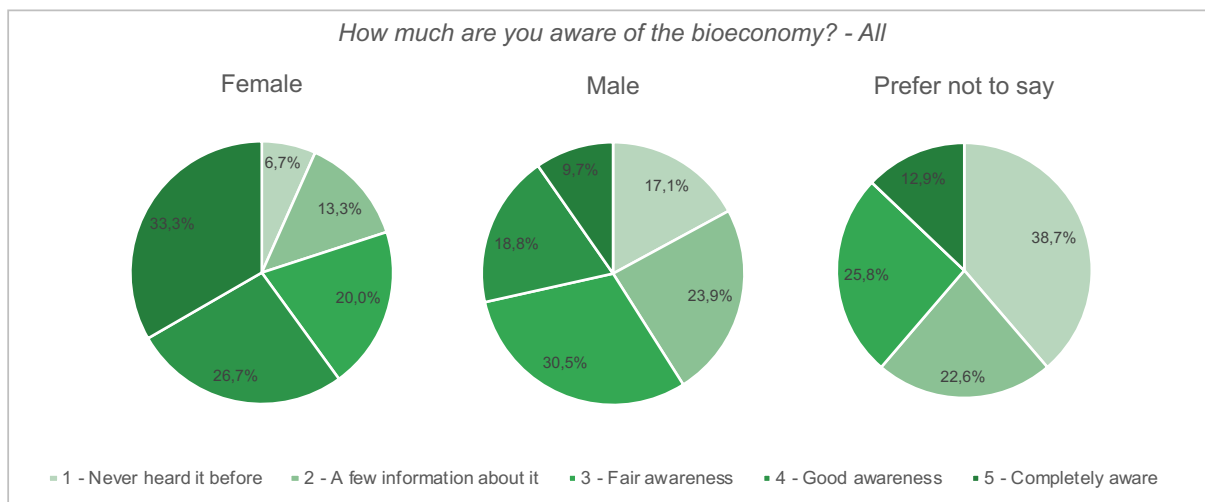
Annex 38 - Respondents awareness of bioeconomy: all vs. people NOT working in the bioeconomy

Country	1 - Never heard it before	2 - A few information about it	3 - Fair awareness	4 - Good awareness	5 - Completely aware	#Replies per Country
Belgium	0,0%	23,1%	23,1%	46,2%	7,7%	13
Croatia	23,7%	24,7%	30,1%	14,0%	7,5%	93
Estonia	7,8%	25,5%	41,2%	21,6%	3,9%	51
France	15,4%	7,7%	30,8%	7,7%	38,5%	13
Germany	31,1%	21,6%	24,3%	10,8%	12,2%	74
Greece	29,2%	34,7%	23,6%	9,7%	2,8%	72
Hungary	6,3%	6,3%	18,8%	31,3%	37,5%	16
Italy	19,1%	23,0%	34,3%	19,1%	4,3%	230
Portugal	12,4%	22,9%	34,3%	25,7%	4,8%	105
Slovakia	19,0%	33,3%	28,6%	11,9%	7,1%	42
Spain	21,0%	25,5%	31,8%	15,9%	5,7%	157
Netherlands	23,1%	28,2%	29,5%	12,8%	6,4%	78
UK	19,0%	14,3%	19,0%	38,1%	9,5%	21
EU	19,6%	24,3%	30,4%	18,5%	7,2%	986
Third countries	10,7%	7,1%	25,0%	35,7%	21,4%	28
TOTAL	19,3%	23,9%	30,3%	18,9%	7,6%	993

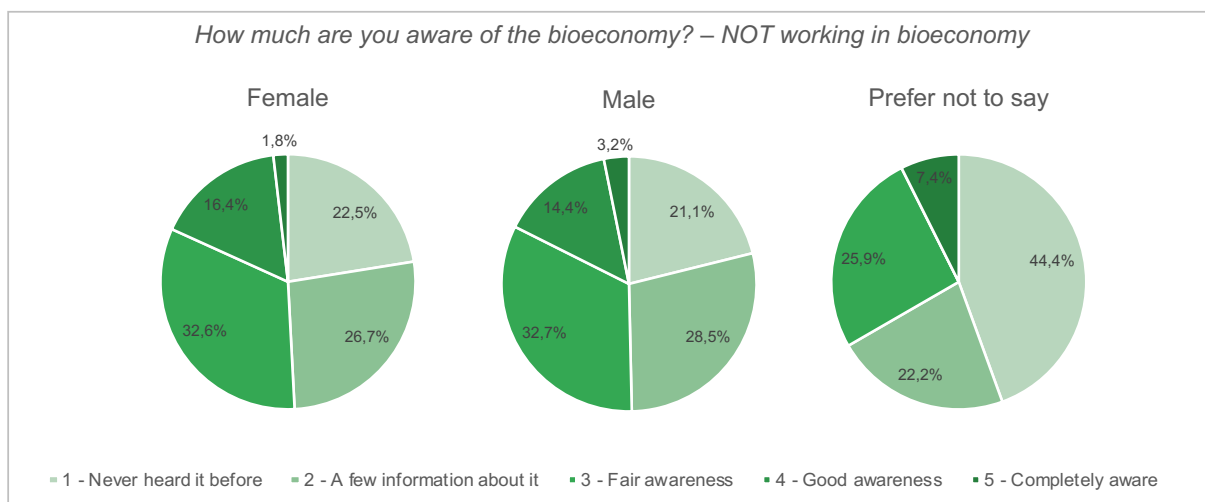
Annex 39 - Bioeconomy awareness per country (all)

Country	1 - Never heard it before	2 - A few information about it	3 - Fair awareness	4 - Good awareness	5 - Completely aware	#replies per Country
Belgium	0,0%	25,0%	25,0%	50,0%	0,0%	4 (13)
Croatia	25,0%	26,1%	30,7%	13,6%	4,5%	88 (93)
Estonia	8,2%	26,5%	40,8%	20,4%	4,1%	49 (51)
France	40,0%	0,0%	40,0%	20,0%	0,0%	5 (13)
Germany	37,7%	26,2%	27,9%	8,2%	0,0%	61 (74)
Greece	31,3%	34,3%	25,4%	7,5%	1,5%	67 (72)
Hungary	10,0%	10,0%	20,0%	40,0%	20,0%	10 (16)
Italy	22,9%	27,7%	36,2%	12,8%	0,5%	188 (230)
Portugal	10,2%	18,8%	28,1%	17,2%	1,6%	97 (105)
Slovakia	19,5%	34,1%	26,8%	12,2%	7,3%	41 (42)
Spain	25,8%	28,1%	33,6%	11,7%	0,8%	128 (157)
Netherlands	24,3%	29,7%	29,7%	12,2%	4,1%	74 (78)
UK	23,5%	17,6%	23,5%	35,3%	0,0%	17 (21)
EU	22,9%	27,6%	32,4%	14,7%	2,4%	837 (986)
Third countries	11,8%	5,9%	35,3%	41,2%	5,9%	17 (28)
TOTAL	22,7%	27,2%	32,4%	15,2%	2,5%	854 (993)

Annex 40 - Bioeconomy awareness per country - NOT working in bioeconomy (in brackets: all replies collected in the analysed countries)

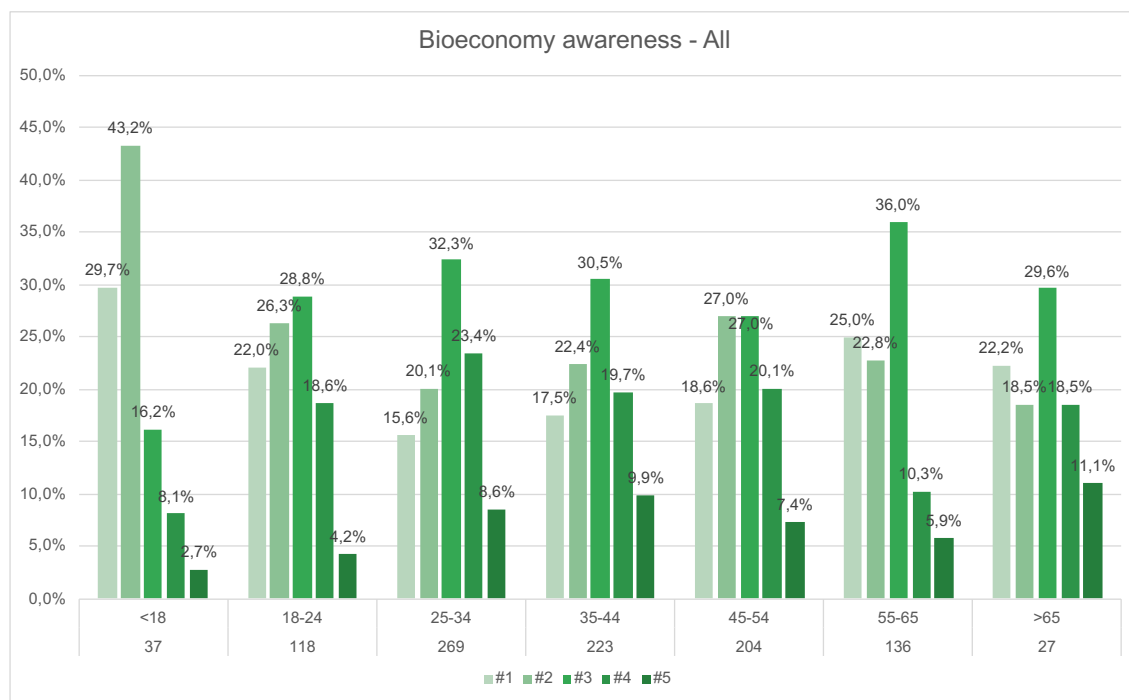


Annex 41 - Bioeconomy awareness per gender (all)

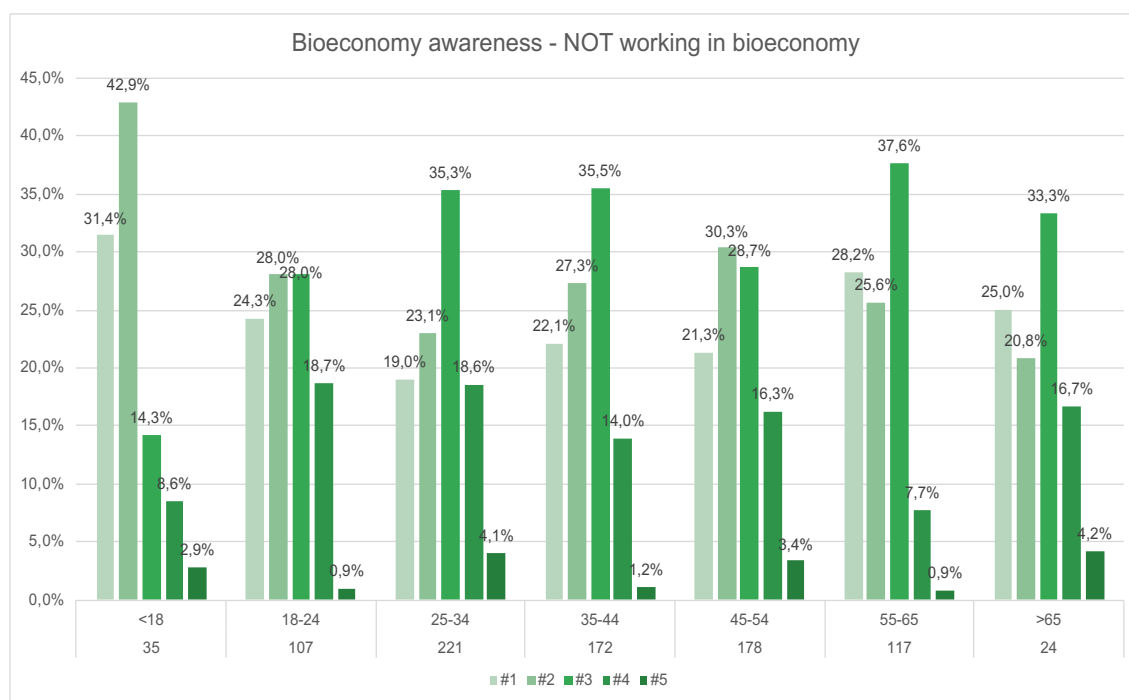


Annex 42 - Bioeconomy awareness per gender (NOT working in the bioeconomy sector)

From #1 – Never heard about the bioeconomy before (brightest green) to #5 – completely aware of it (darkest green).

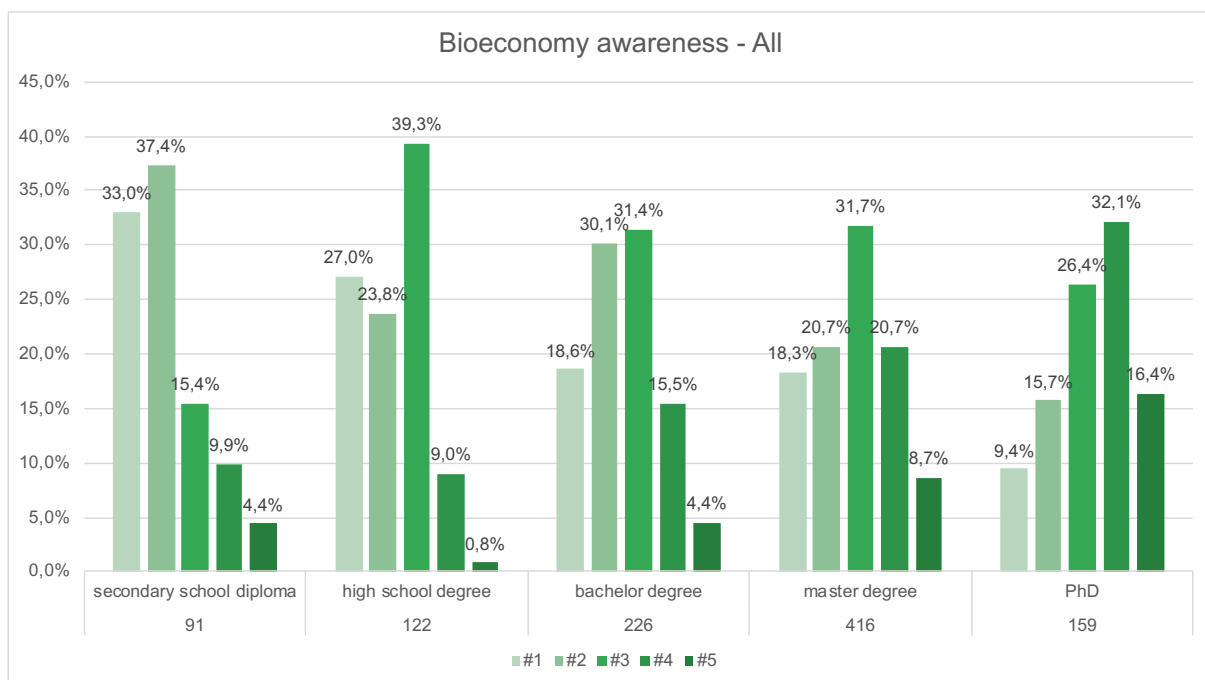


Annex 43 - Bioeconomy awareness per age (all), including the number of respondents per each education group

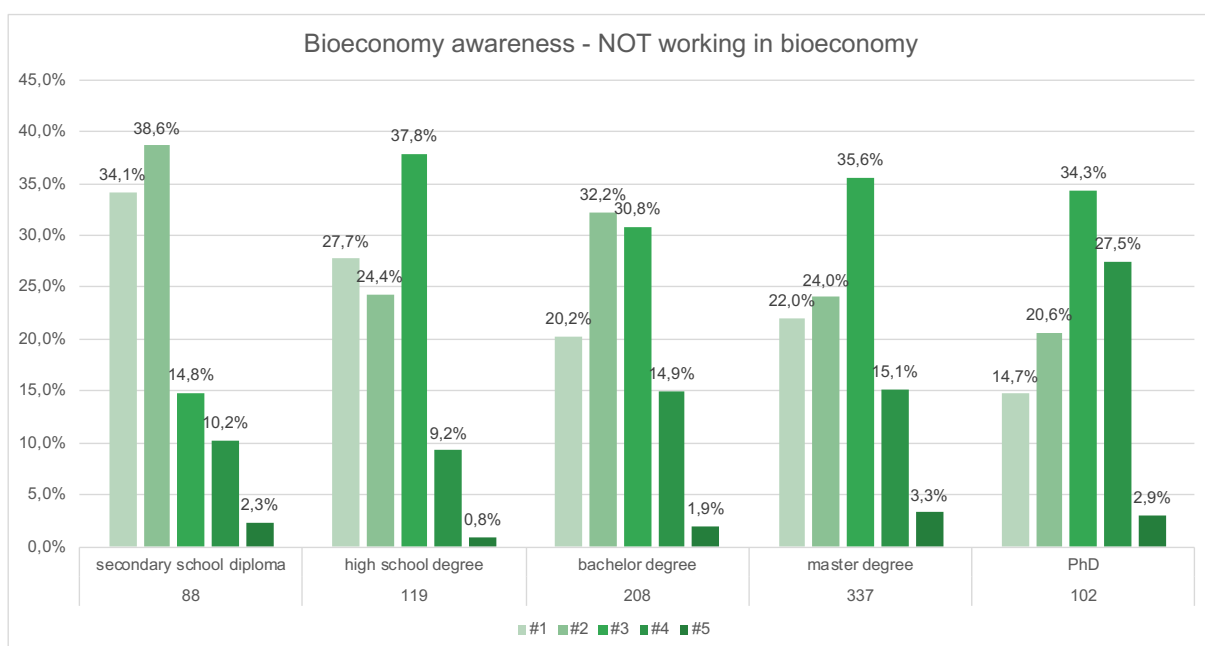


Annex 44 - Bioeconomy awareness per age (NOT working in the bioeconomy sector), including the number of respondents per each education group

From #1 – *Never heard about the bioeconomy before* (brightest green) to #5 – *completely aware of it* (darkest green).

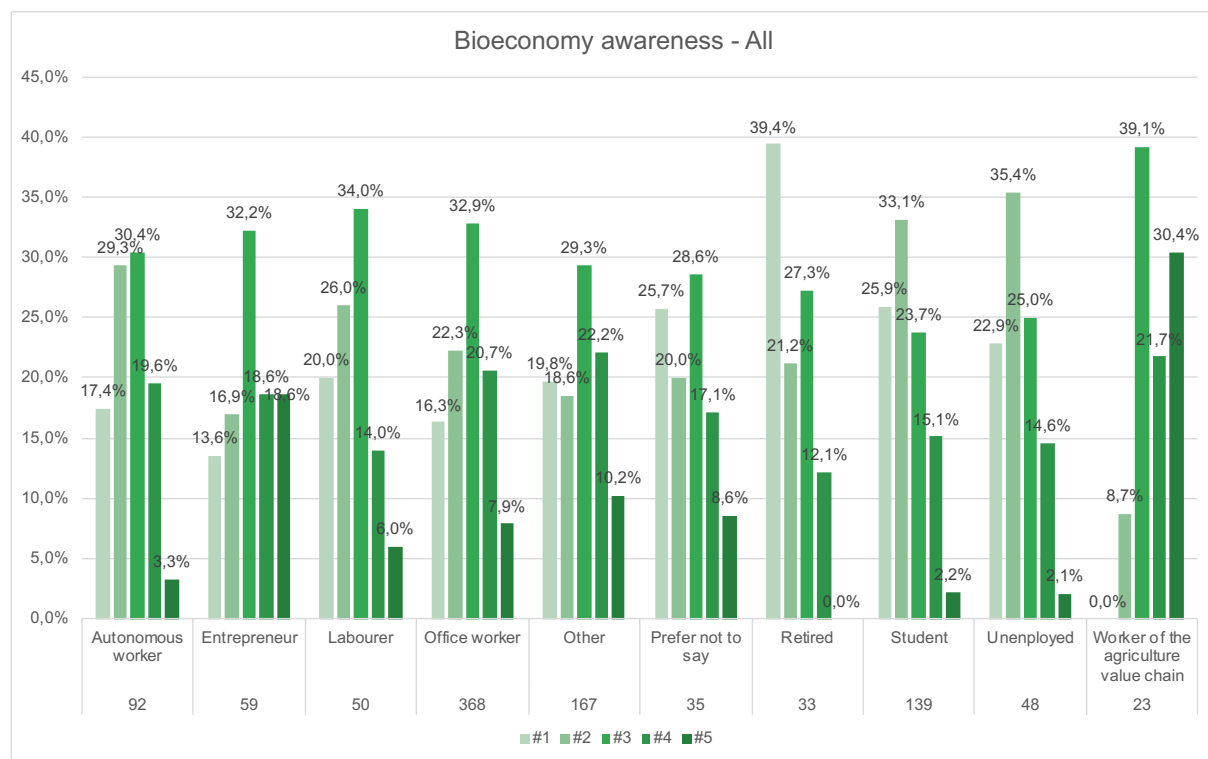


Annex 45 - Bioeconomy awareness per education (all), including the number of respondents per each education group

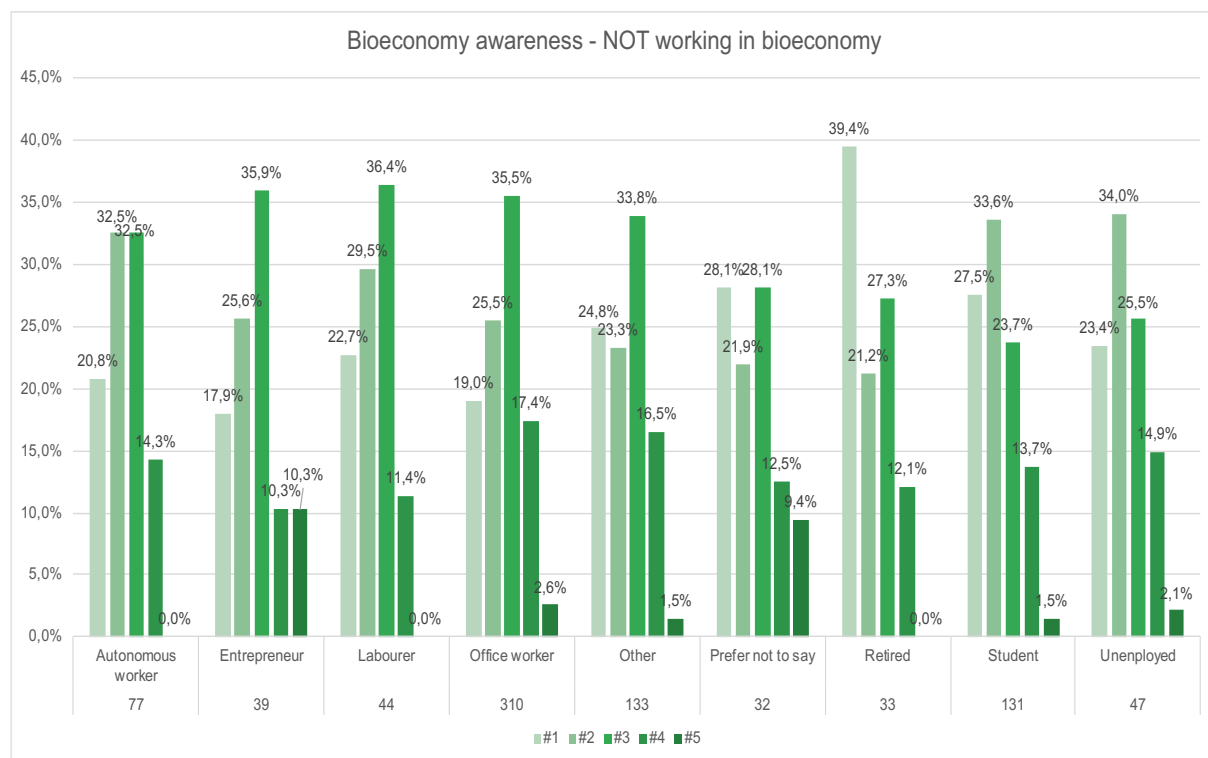


Annex 46 - Bioeconomy awareness per education (NOT working in the bioeconomy sector), including the number of respondents per each education group

From #1 – *Never heard about the bioeconomy before* (brightest green) to #5 – *completely aware of it* (darkest green).

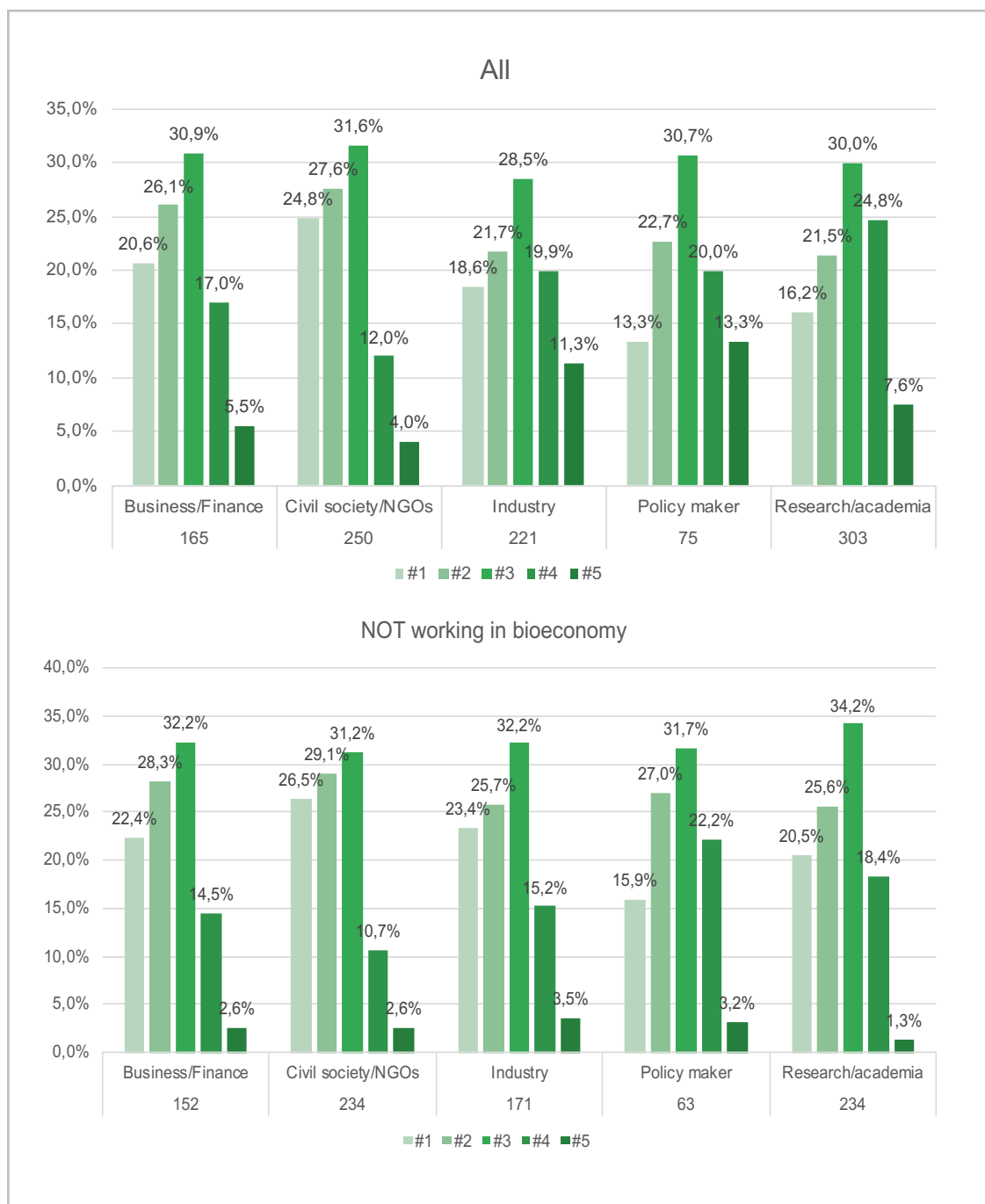


Annex 47 - Bioeconomy awareness per work (all), including the number of respondents per each work group



Annex 48 - Bioeconomy awareness per work (NOT working in the bioeconomy sector), including the number of respondents per each work group

From #1 – *Never heard about the bioeconomy before* (brightest green) to #5 – *completely aware of it* (darkest green).



Annex 49 - Replies per stakeholder typology (all, up; people NOT working in the bioeconomy sector, on the bottom); including the number of respondents

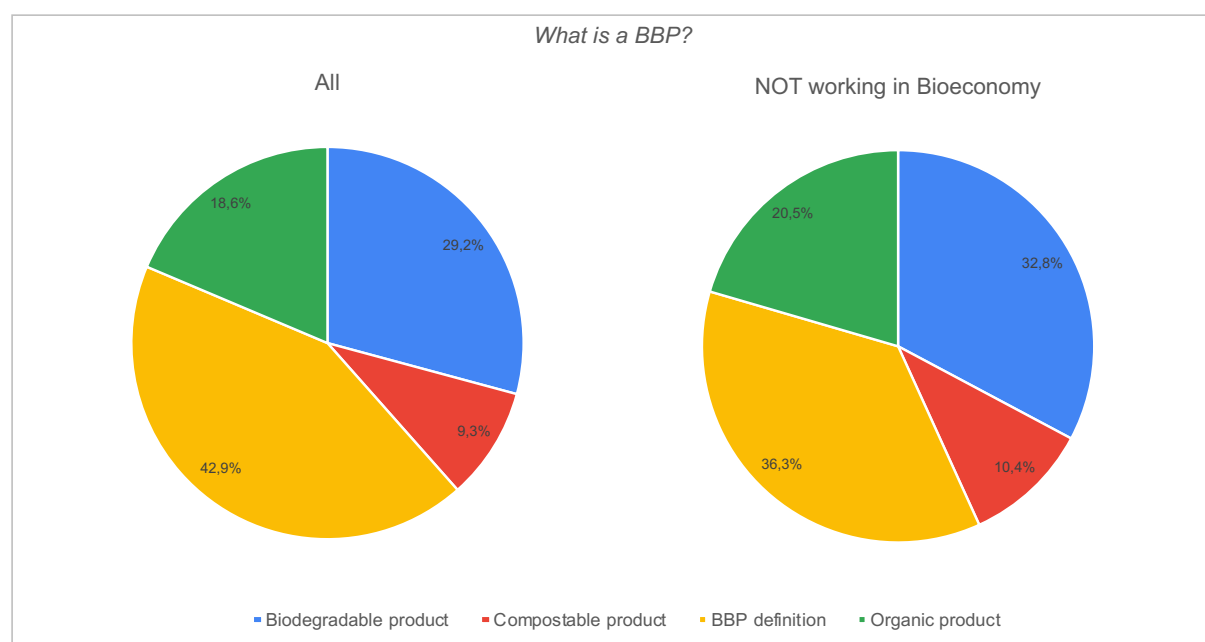
6.2.4. Question 3 – What is a bio-based product?

Options (in bold the correct answer):

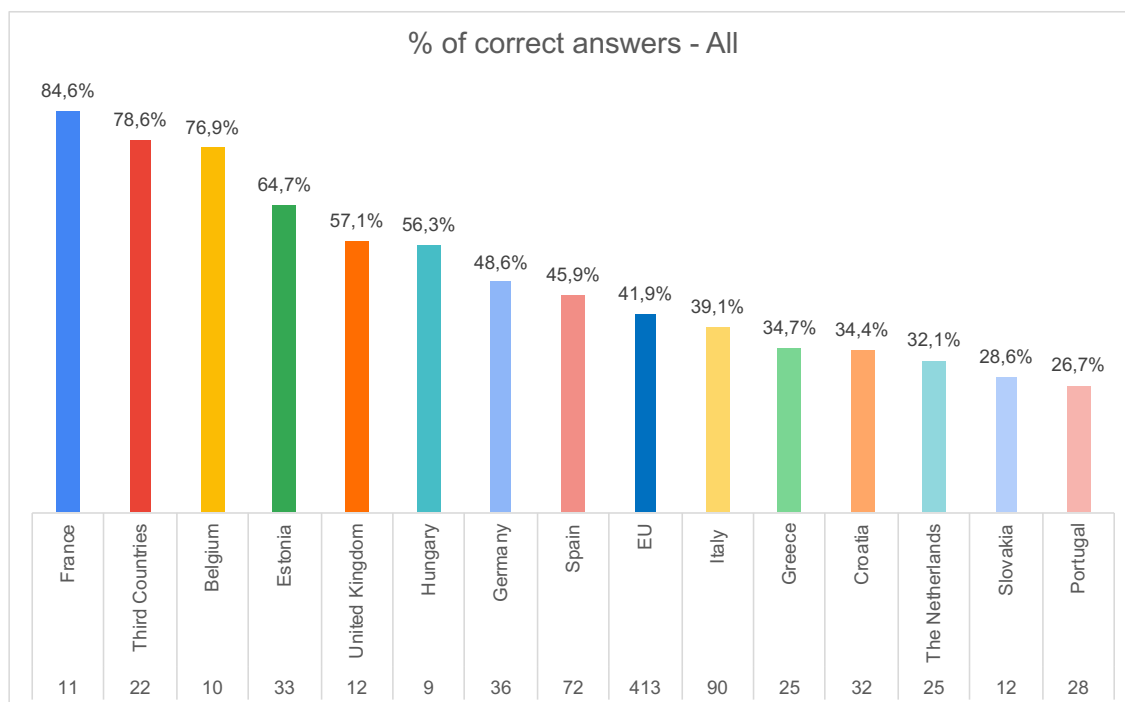
- 1 - An organic product certified by an independent organization – Organic product
- 2 - A bio-degradable product created from recycled resources – Biodegradable product
- 3 - A product wholly or partly derived from biomass** – Bio-based product definition provided by [CEN-CENELEC](#), EN-16575
- 4 - A fully compostable product – Compostable product

What is a BBP?	Working in Bioeconomy	NOT working in Bioeconomy	Total
Biodegradable product	16	280	296
Compostable product	5	89	94
BBP definition	125	310	435
Organic product	14	175	189

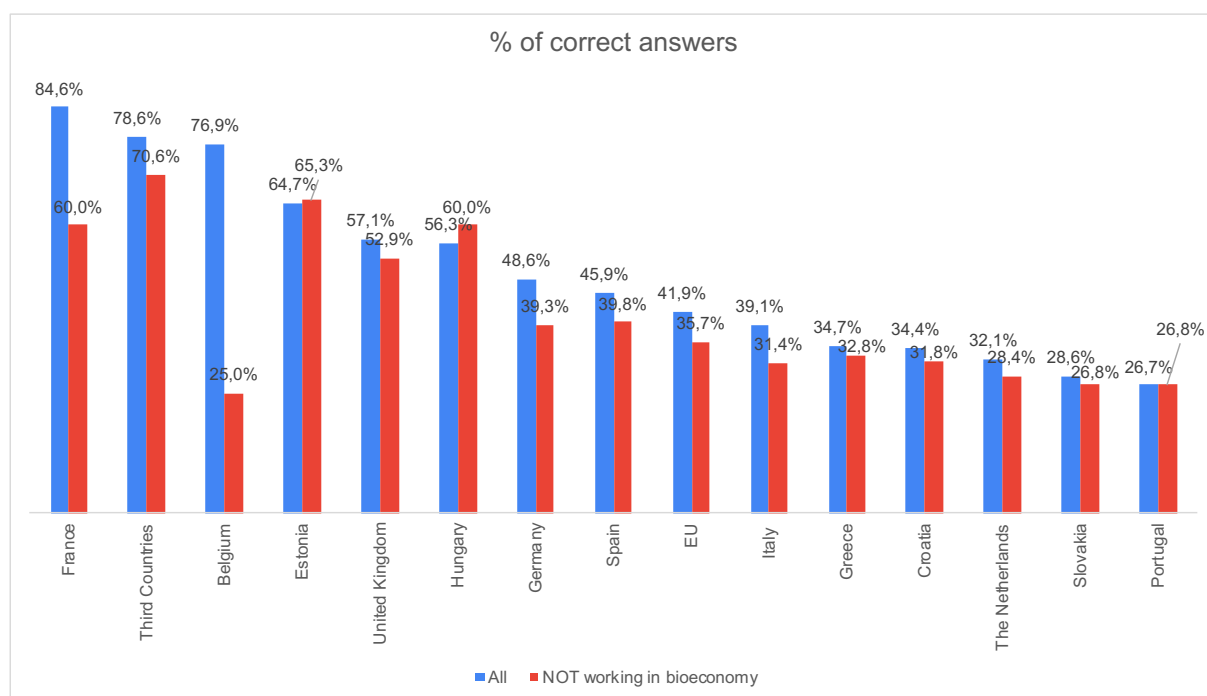
Annex 50 - Number of replies to the question "What is a Bio-based product?"



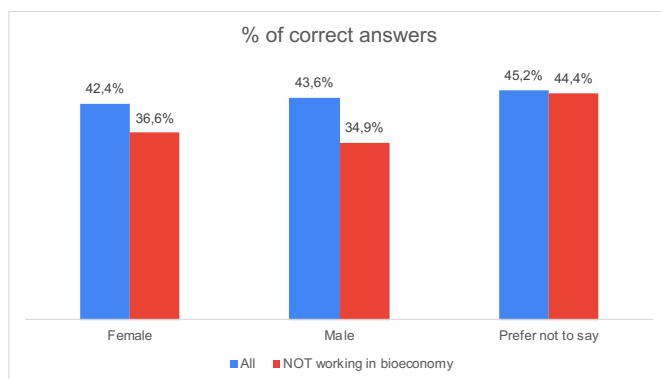
Annex 51 - % of replies to the question "What is a Bio-based product?" - All vs. people NOT working in the bioeconomy



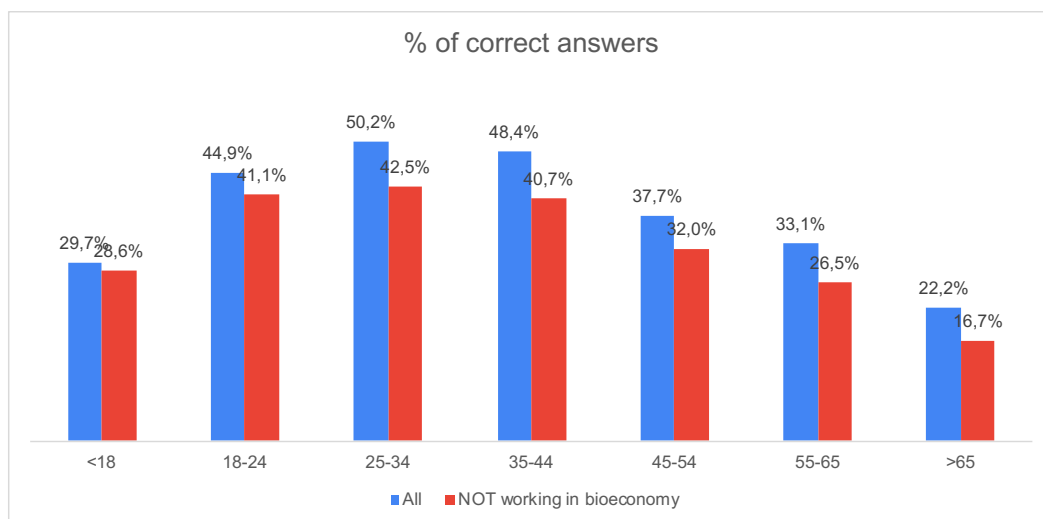
Annex 52 - % of correct answers per country (all)



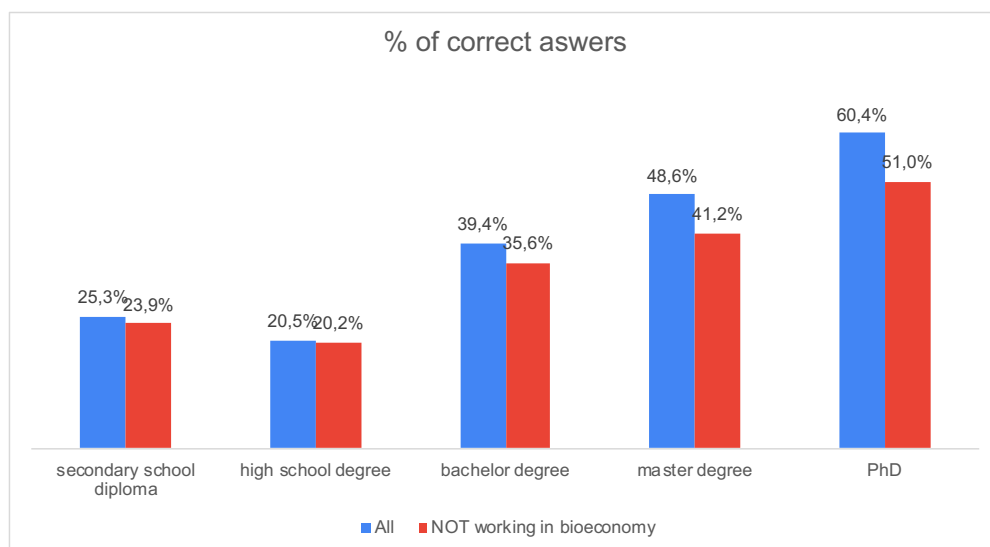
Annex 53 - % of correct answers per country (all vs. NOT working in the bioeconomy sector)



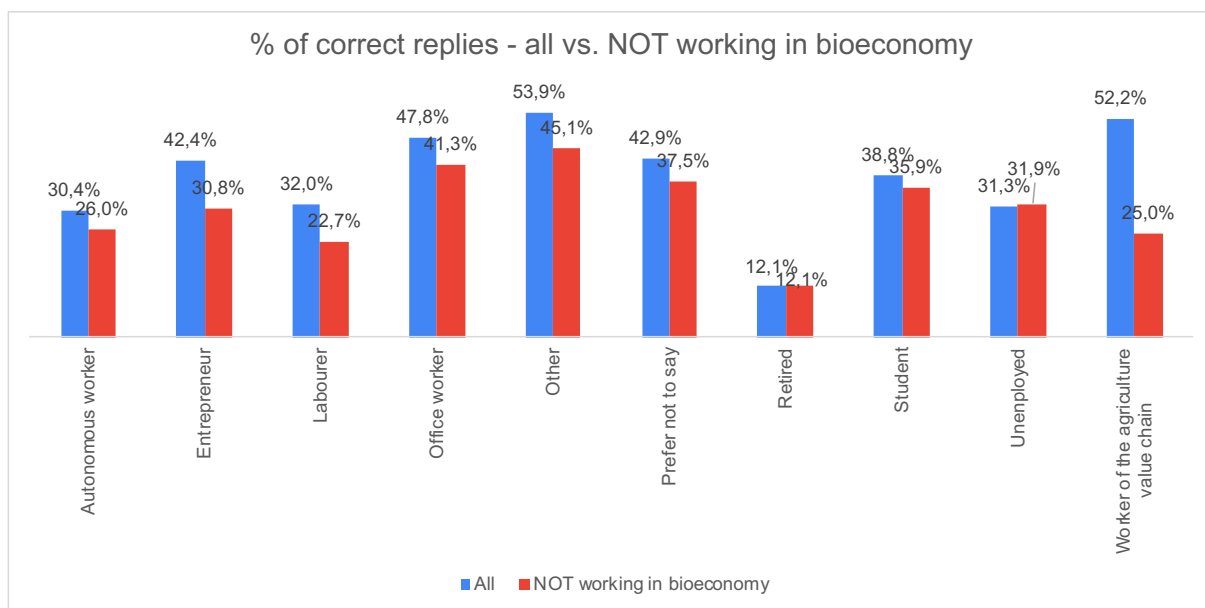
Annex 54 - % of correct answers per gender (all vs. NOT working in the bioeconomy sector)



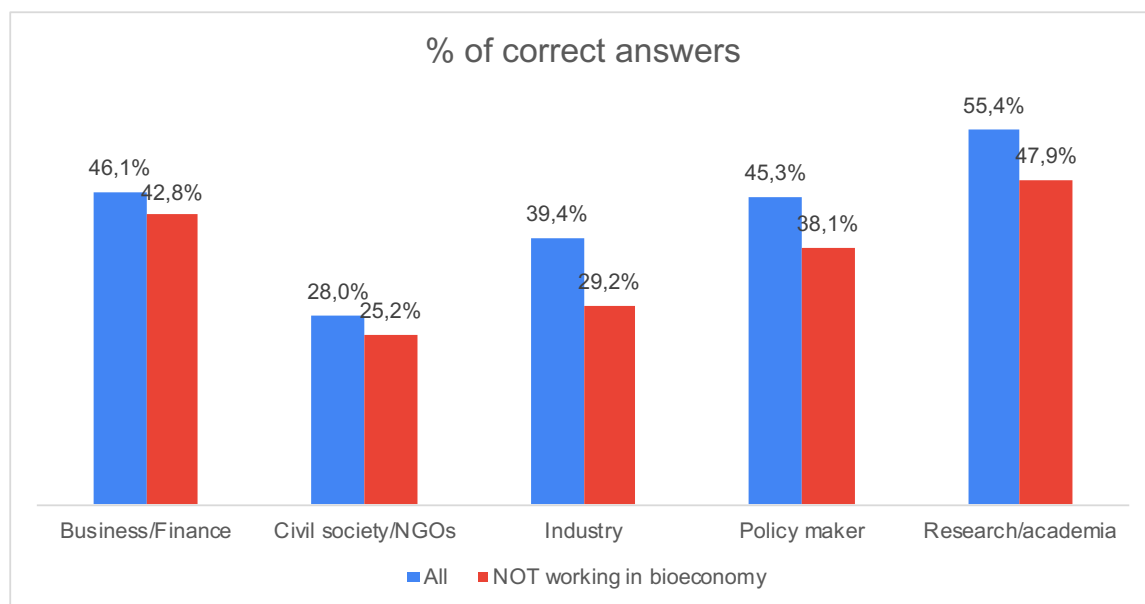
Annex 55 - % of correct answers per age (all vs. NOT working in the bioeconomy sector)



Annex 56 - % of correct answers per education (all vs. NOT working in the bioeconomy sector)



Annex 57 - % of correct answers per work (all vs. NOT working in the bioeconomy sector)



Annex 58 - % of correct answers per stakeholder category (all vs. NOT working in the bioeconomy sector)



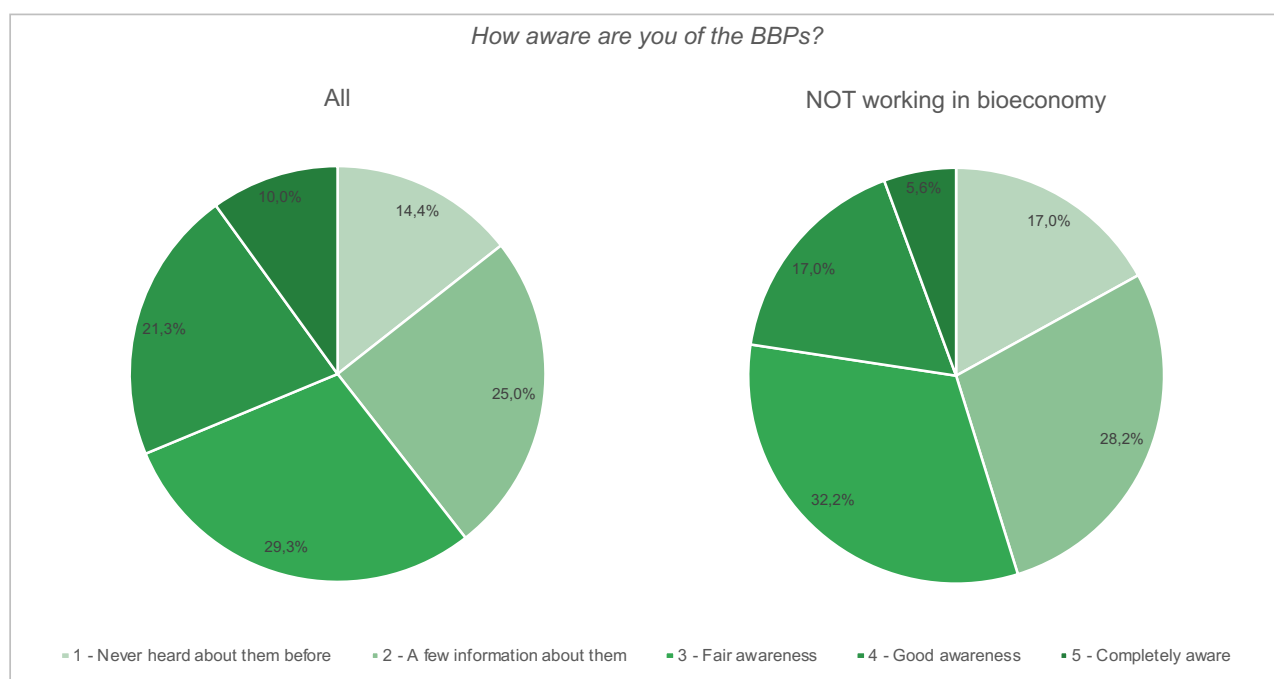
Annex 59 - Replies to the question “What is a bio-based product?” per age (up) and education (on the bottom), including the number of respondents – people not working in the bioeconomy sector

6.2.5. Question 4 – BBPs awareness

From 1 (I have never heard about them before) to 5 (I am completely aware), how aware are you of the Bio-Based Products (BBPs)?

How aware are you of the BBPs	Working in bioeconomy	NOT working in bioeconomy	Total
1 - Never heard about them before	1	145	146
2 - A few information about them	13	241	254
3 - Fair awareness	22	275	297
4 - Good awareness	71	145	216
5 - Completely aware	53	48	101

Annex 60 - Number of replies to the question "How aware are you of the Bio-Based Products (BBPs)?"



Annex 61 - Respondents awareness of BBPs: all vs. people NOT working in the bioeconomy

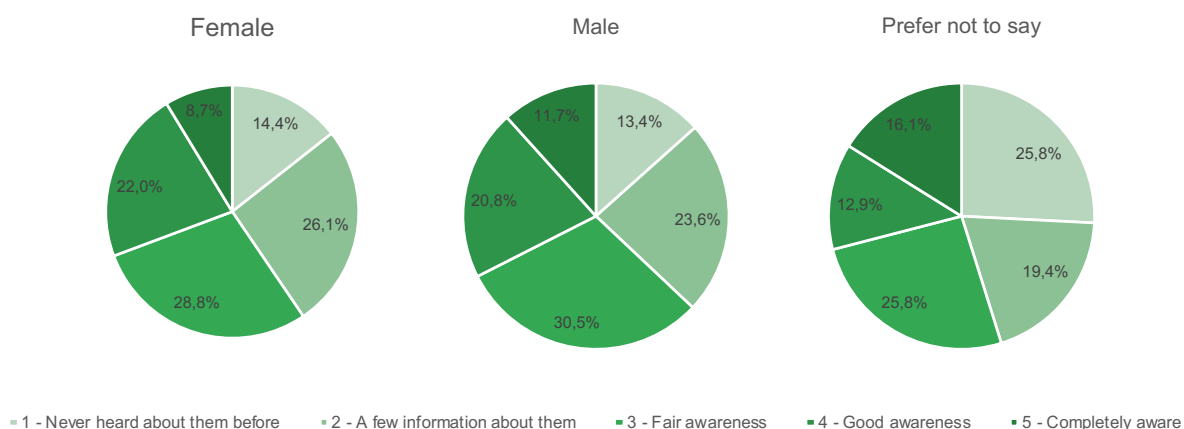
Country	1 - Never heard about them before	2 - A few information about them	3 - Fair awareness	4 - Good awareness	5 - Completely aware	Total
Belgium	7,7%	15,4%	15,4%	53,8%	7,7%	13
Croatia	11,8%	26,9%	32,3%	15,1%	14,0%	93
Estonia	5,9%	23,5%	39,2%	21,6%	9,8%	51
France	15,4%	15,4%	23,1%	15,4%	30,8%	13
Germany	24,3%	16,2%	13,5%	25,7%	20,3%	74
Greece	26,4%	38,9%	20,8%	11,1%	2,8%	72
Hungary	6,3%	6,3%	18,8%	43,8%	25,0%	16
Italy	20,4%	26,5%	28,3%	19,1%	5,7%	230
Portugal	3,8%	20,0%	39,0%	26,7%	10,5%	105
Slovakia	9,5%	26,2%	35,7%	23,8%	4,8%	42
Spain	12,1%	31,2%	34,4%	17,8%	4,5%	157
Netherlands	16,7%	26,9%	32,1%	17,9%	6,4%	78
UK	19,0%	14,3%	23,8%	28,6%	14,3%	21
EU	14,8%	25,3%	29,5%	21,0%	9,4%	986
Third Countries	0,0%	17,9%	21,4%	32,1%	28,6%	28
TOTAL	14,4%	25,0%	29,3%	21,3%	10,0%	993

Annex 62 – BBPs awareness per country (all)

Country	1 - Never heard about them before	2 - A few information about them	3 - Fair awareness	4 - Good awareness	5 - Completely aware	Total (All replies)
Belgium	25,0%	25,0%	25,0%	25,0%	0,0%	4 (13)
Croatia	12,5%	28,4%	34,1%	14,8%	10,2%	88 (93)
Estonia	4,1%	24,5%	40,8%	20,4%	10,2%	49 (51)
France	40,0%	20,0%	20,0%	20,0%	0,0%	5 (13)
Germany	29,5%	19,7%	16,4%	24,6%	9,8%	61 (74)
Greece	28,4%	40,3%	20,9%	9,0%	1,5%	67 (72)
Hungary	10,0%	10,0%	20,0%	50,0%	10,0%	10 (16)
Italy	25,0%	29,3%	31,9%	11,7%	2,1%	188 (203)
Portugal	4,1%	20,6%	42,3%	23,7%	9,3%	97 (105)
Slovakia	9,8%	26,8%	36,6%	22,0%	4,9%	41 (42)
Spain	14,8%	36,7%	34,4%	13,3%	0,8%	128 (157)
Netherlands	17,6%	28,4%	32,4%	17,6%	4,1%	74 (74)
UK	23,5%	17,6%	29,4%	23,5%	5,9%	17 (21)
EU	17,3%	28,3%	32,3%	16,8%	5,3%	837 (986)
Third Countries	0,0%	23,5%	29,4%	23,5%	23,5%	17 (28)
TOTAL	17,0%	28,2%	32,2%	17,0%	5,6%	854 (993)

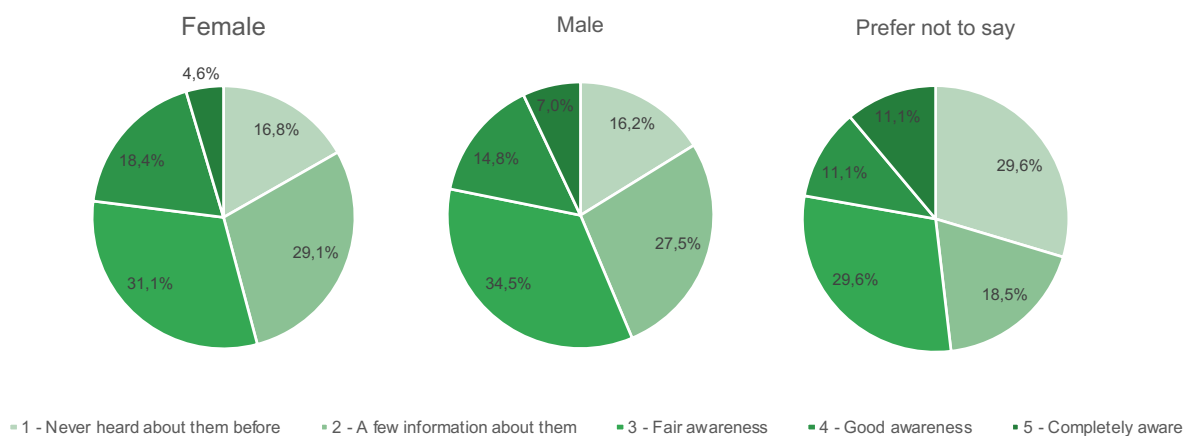
Annex 63 - BBPs awareness per country - NOT working in the bioeconomy sector (in brackets: all replies collected in the analysed countries)

How aware are you of the BBPs? – All



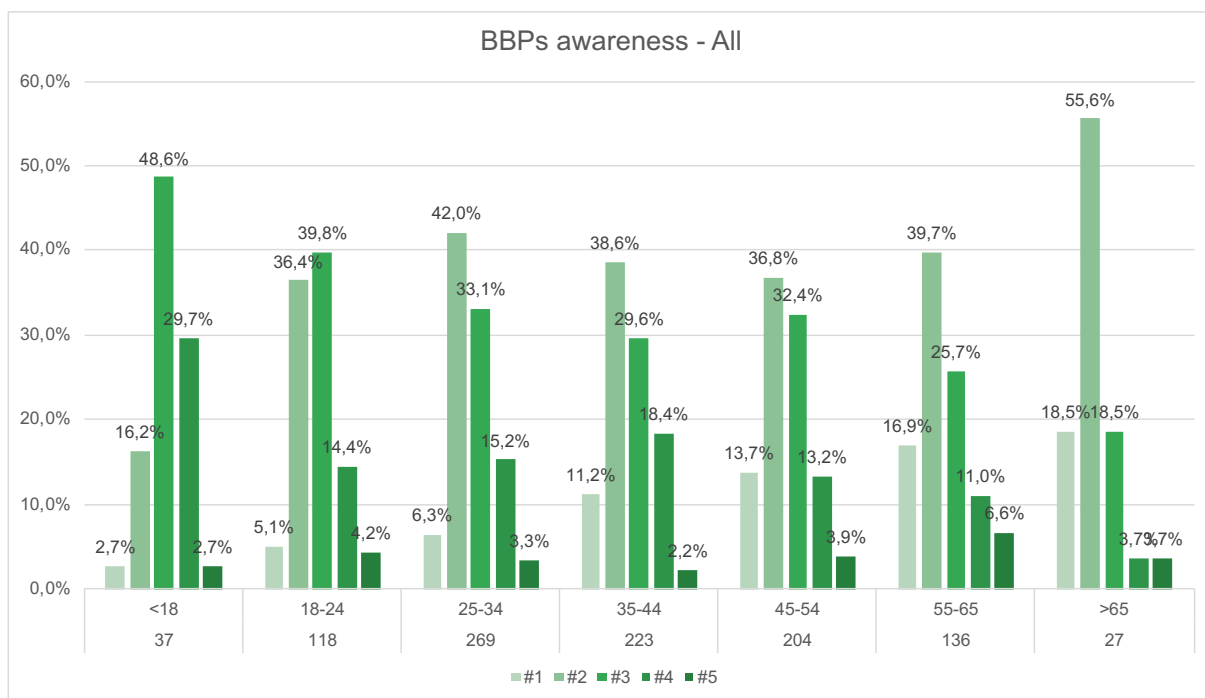
Annex 64 - BBPs awareness per gender (all)

How aware are you of the BBPs? – NOT working in bioeconomy

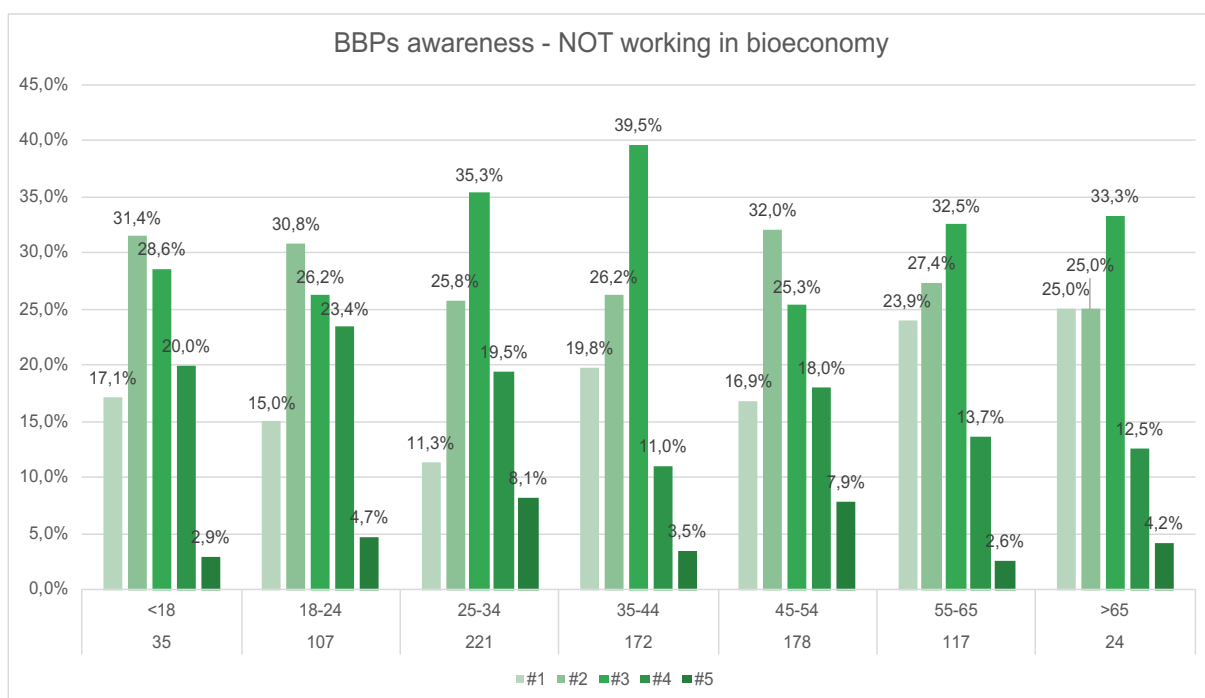


Annex 65 - BBPs awareness per gender (NOT working in the bioeconomy sector)

From #1 – Never heard about BBPs before (brightest green) to #5 – completely aware of them (darkest green).

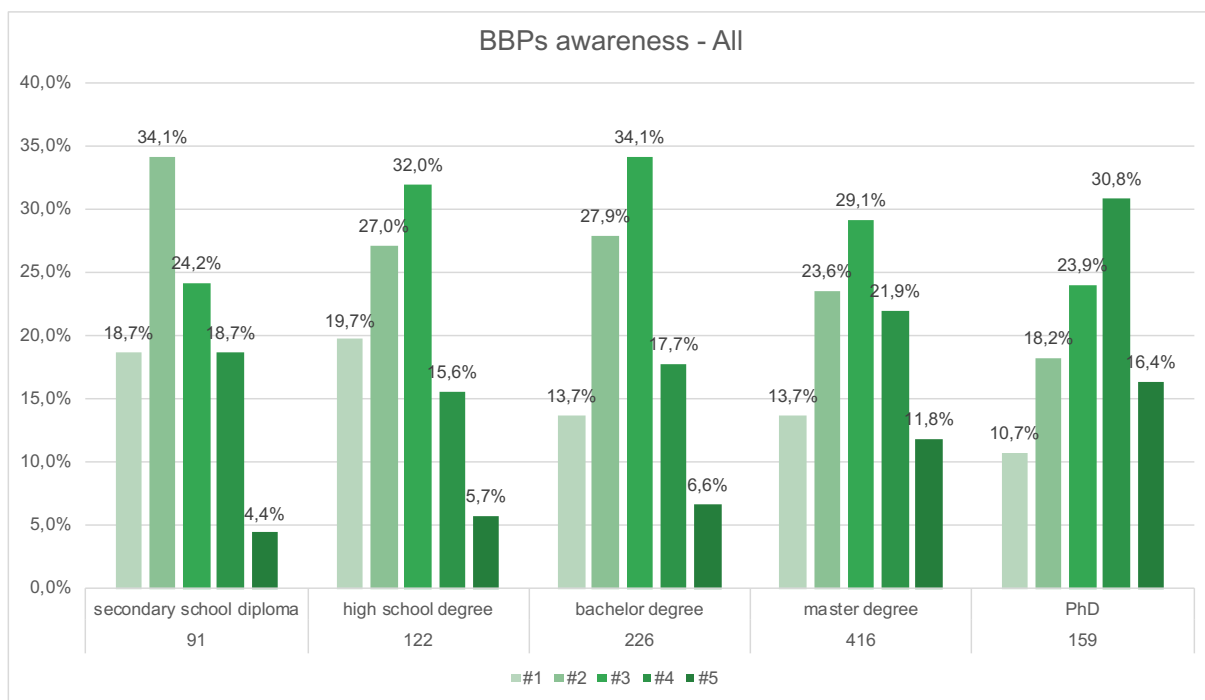


Annex 66 - BBPs awareness per age (all), including the number of respondents per each age group

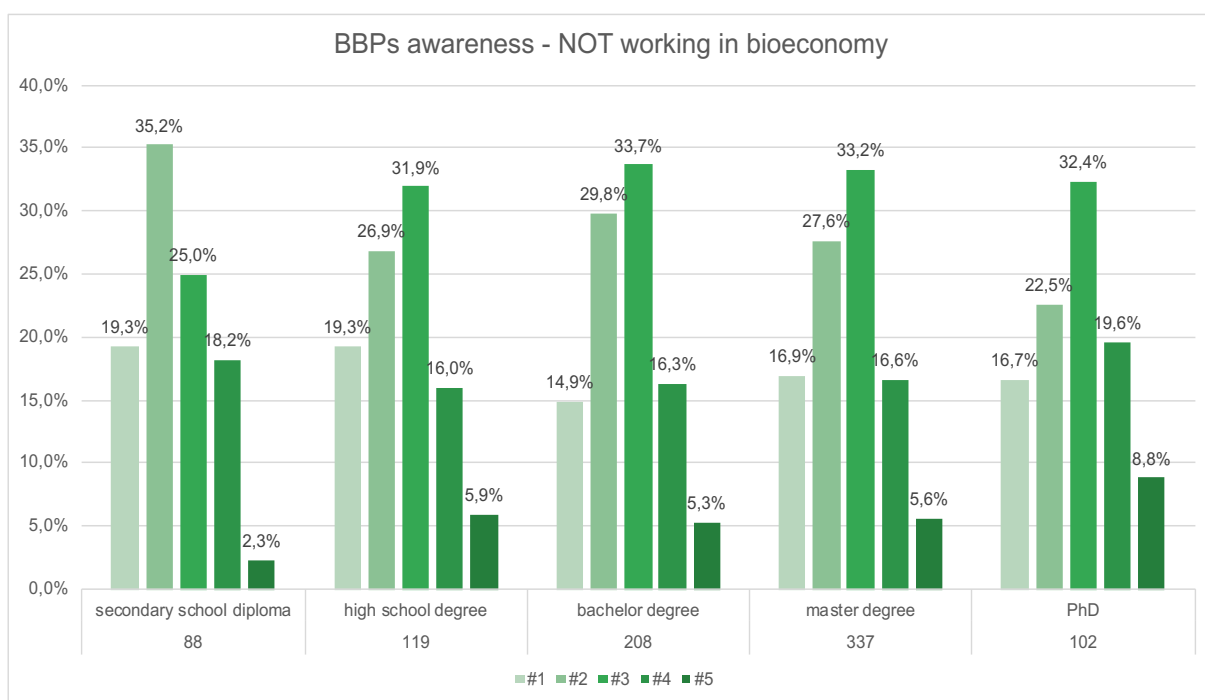


Annex 67 - BBPs awareness per age (NOT working in the bioeconomy sector), including the number of respondents per each age group

From #1 – Never heard about BBPs before (brightest green) to #5 – completely aware of them (darkest green).

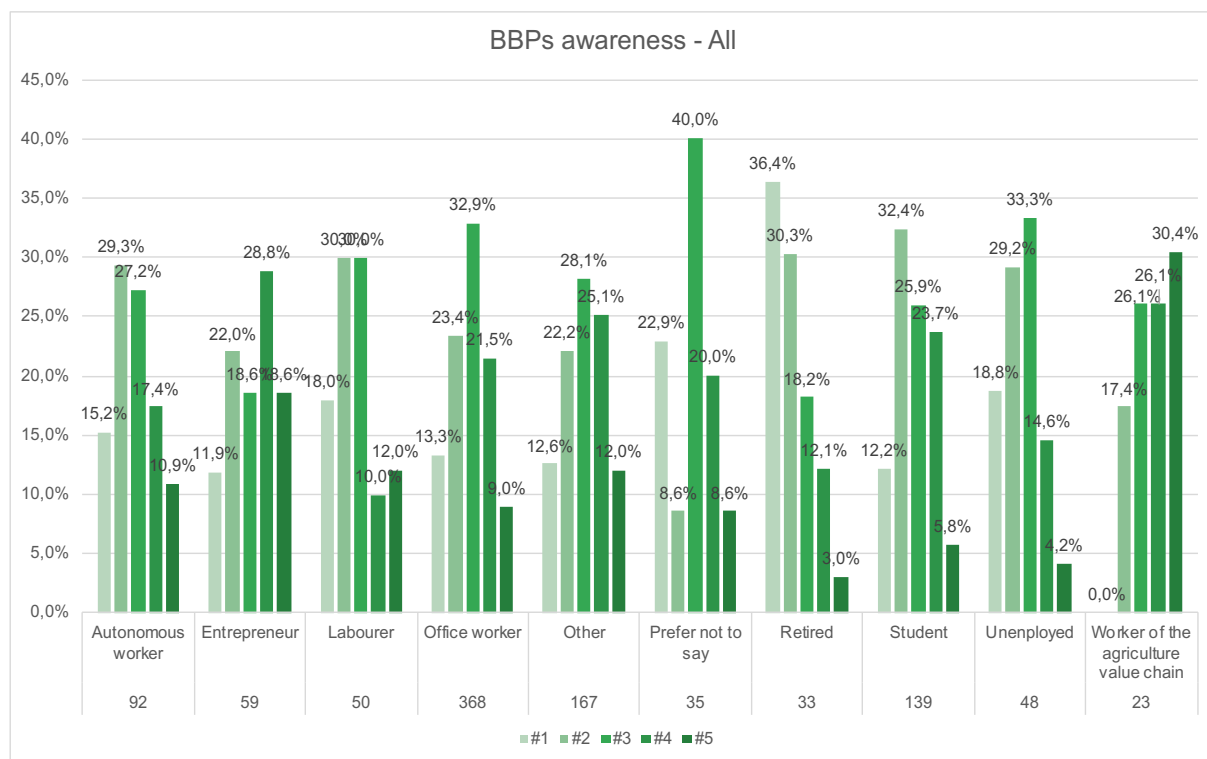


Annex 68 - BBPs awareness per education (all), including the number of respondents per each education group

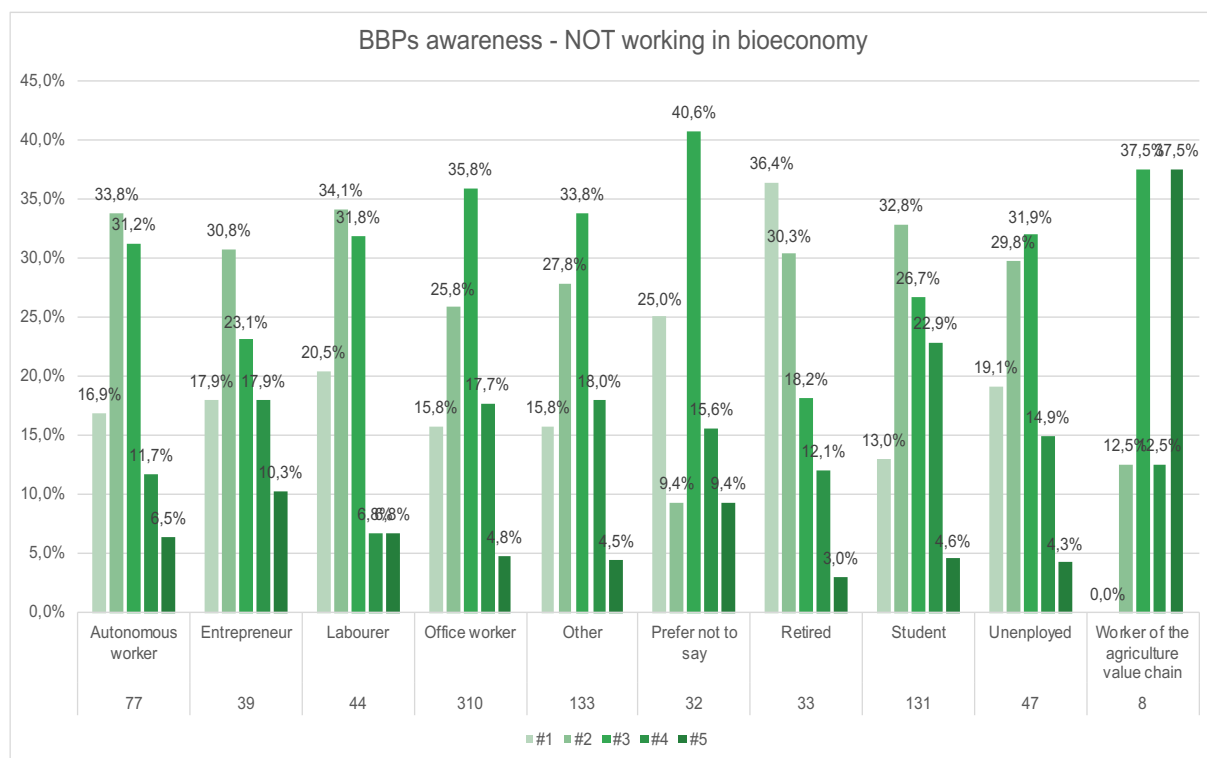


Annex 69 - BBPs awareness per education (NOT working in the bioeconomy sector), including the number of respondents per each education group

From #1 – Never heard about BBPs before (brightest green) to #5 – completely aware of them (darkest green).

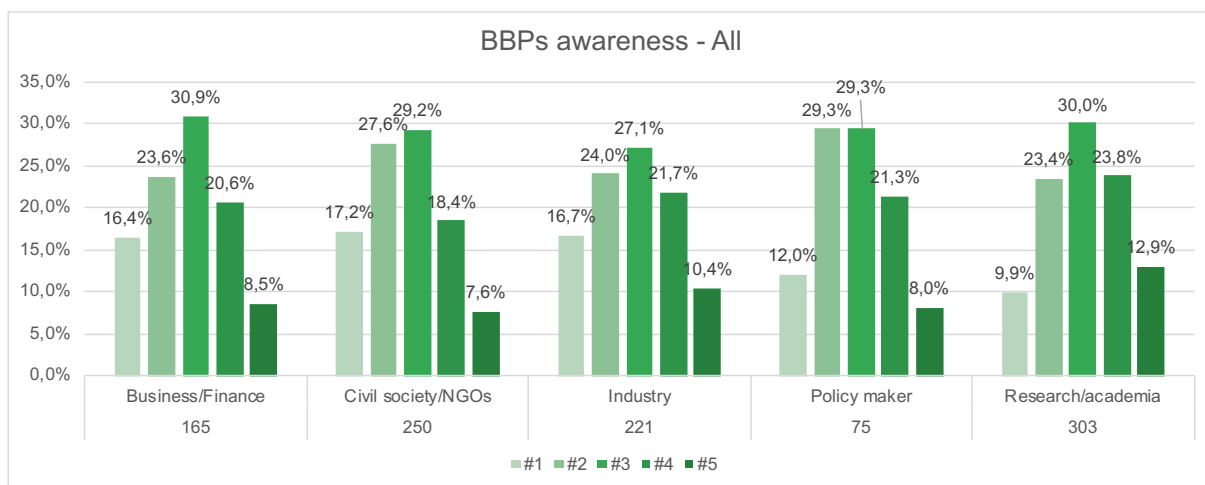


Annex 70 - BBPs awareness per work (all), including the number of respondents per each work group

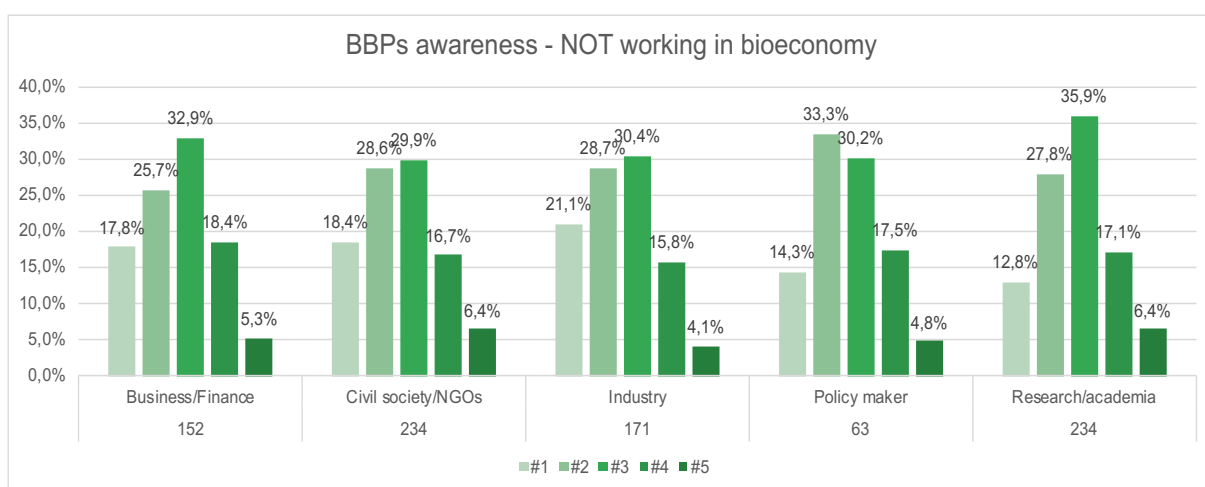


Annex 71 - BBPs awareness per work (NOT working in the bioeconomy sector), including the number of respondents per each work group

From #1 – Never heard about BBPs before (brightest green) to #5 – completely aware of them (darkest green).



Annex 72 - BBPs awareness per stakeholder category (all), including the number of respondents per each stakeholder category group



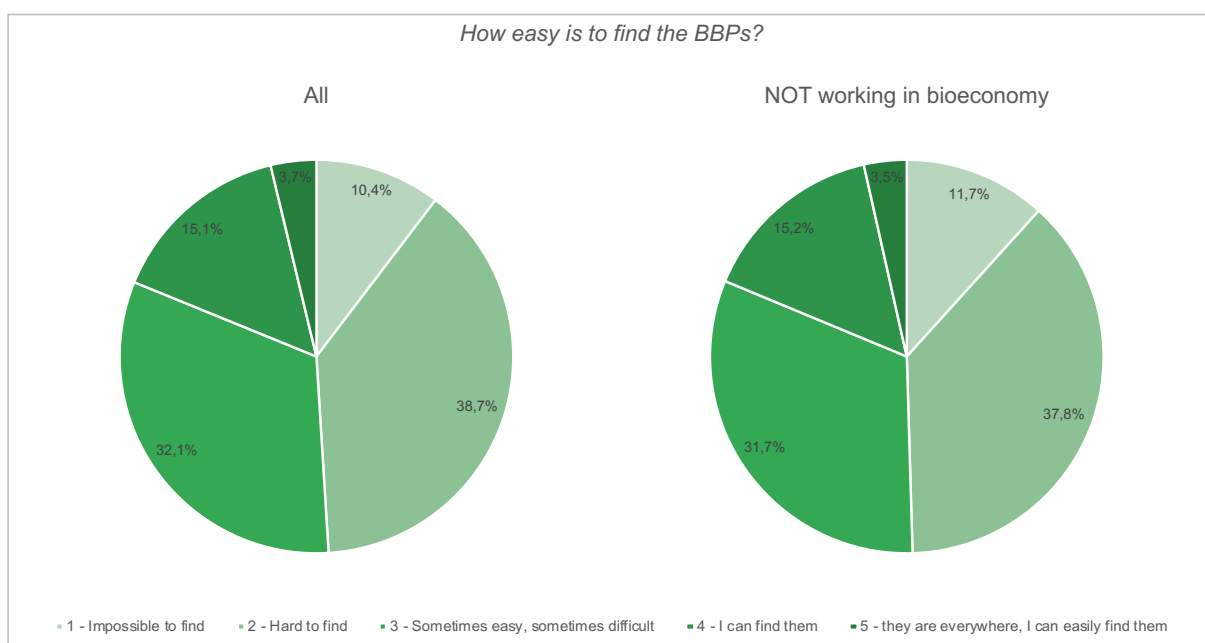
Annex 73 - BBPs awareness per stakeholder category (NOT working in the bioeconomy sector), including the number of respondents per each stakeholder category group

6.2.6. Question 5 – Finding BBPs during shopping activities

When you shop, how easy is to find bio-based products (in shopping malls, online stores, etc)?
Use a rate from #1 - *It is impossible to find them* to 5# - *They are sold everywhere, and I can easily find them*.

When you shop, how easy is to find BBPs?	Working in bioeconomy	NOT working in bioeconomy	Total
1 - Impossible to find	5	100	105
2 - Hard to find	69	323	392
3 - Sometimes easy, sometimes difficult	55	271	326
4 - I can find them	23	130	153
5 - they are everywhere, I can easily find them	8	30	38

Annex 74 - Number of replies to the question "When you shop, how easy is to find BBPs?"



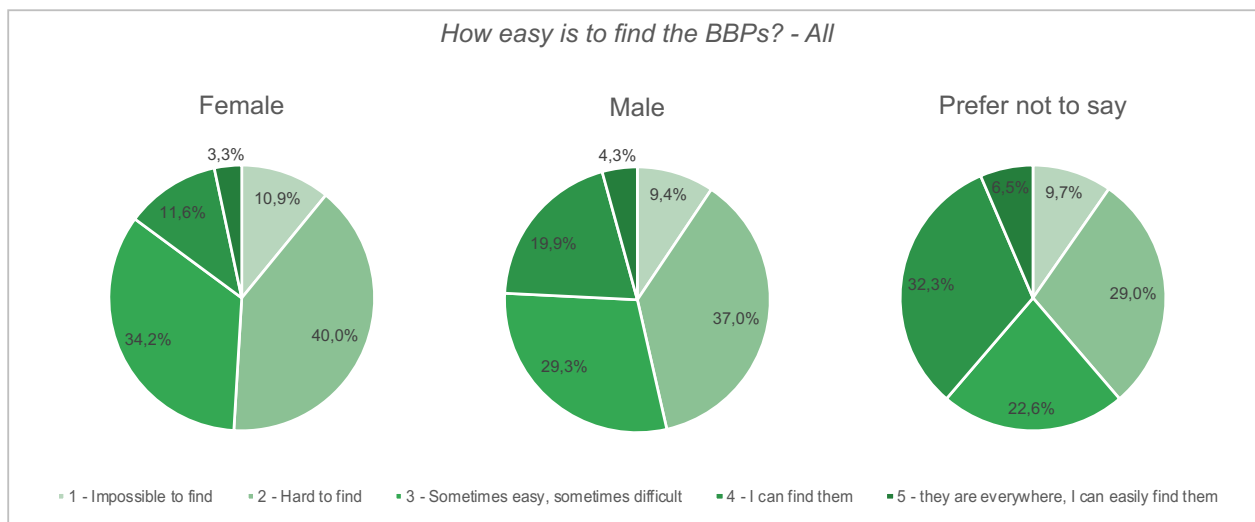
Annex 75 - Respondents ability in finding BBPs during shopping: all vs. NOT working in the bioeconomy sector

Country	1 - Impossible to find	2 - Hard to find	3 - Sometimes easy, sometimes difficult	4 - I can find them	5 - they are everywhere, I can easily find them	Total
Belgium	0,0%	30,8%	46,2%	23,1%	0,0%	13
Croatia	6,5%	37,6%	44,1%	8,6%	3,2%	93
Estonia	3,9%	51,0%	29,4%	13,7%	2,0%	51
France	23,1%	46,2%	30,8%	0,0%	0,0%	13
Germany	16,2%	35,1%	28,4%	14,9%	5,4%	74
Greece	22,2%	41,7%	27,8%	5,6%	2,8%	72
Hungary	25,0%	25,0%	25,0%	18,8%	6,3%	16
Italy	12,6%	43,9%	30,9%	9,6%	3,0%	230
Portugal	2,9%	24,8%	38,1%	30,5%	3,8%	105
Slovakia	2,4%	16,7%	28,6%	42,9%	9,5%	42
Spain	7,6%	41,4%	28,7%	18,5%	3,8%	157
The Netherlands	11,5%	42,3%	33,3%	10,3%	2,6%	78
United Kingdom	14,3%	28,6%	33,3%	19,0%	4,8%	21
EU	10,2%	38,1%	32,5%	15,5%	3,7%	986
Third Countries	14,3%	57,1%	21,4%	0,0%	7,1%	28
TOTALE	10,4%	38,7%	32,1%	15,1%	3,7%	993

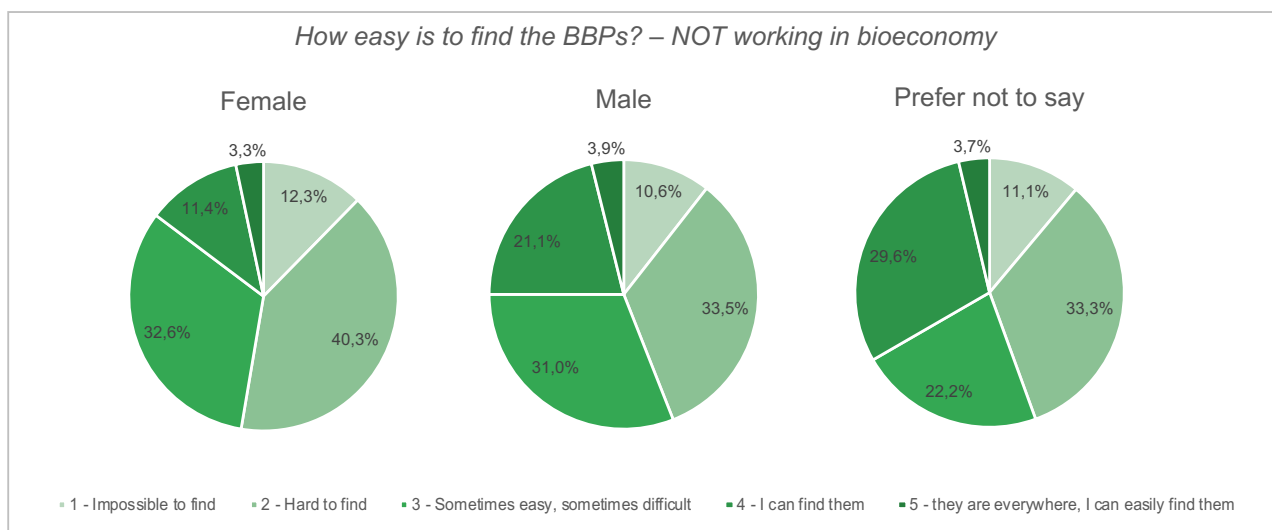
Annex 76 - Respondents ability in finding BBPs during shopping per country (all)

Country	1 - Impossible to find	2 - Hard to find	3 - Sometimes easy, sometimes difficult	4 - I can find them	5 - they are everywhere, I can easily find them	Total (All replies)
Belgium	0,0%	50,0%	25,0%	25,0%	0,0%	4 (13)
Croatia	6,8%	36,4%	45,5%	8,0%	3,4%	88 (93)
Estonia	4,1%	49,0%	30,6%	14,3%	2,0%	49 (51)
France	60,0%	20,0%	20,0%	0,0%	0,0%	5 (13)
Germany	19,7%	31,1%	27,9%	16,4%	4,9%	61 (74)
Greece	23,9%	41,8%	26,9%	4,5%	3,0%	67 (72)
Hungary	30,0%	20,0%	40,0%	0,0%	10,0%	10 (16)
Italy	14,4%	44,7%	28,7%	9,0%	3,2%	188 (230)
Portugal	3,1%	24,7%	39,2%	29,9%	3,1%	97 (105)
Slovakia	2,4%	17,1%	29,3%	41,5%	9,8%	41 (42)
Spain	8,6%	39,8%	28,9%	20,3%	2,3%	128 (157)
Netherlands	12,2%	41,9%	32,4%	10,8%	2,7%	74 (78)
UK	17,6%	35,3%	29,4%	11,8%	5,9%	17 (21)
EU	11,6%	37,6%	31,8%	15,5%	3,5%	837 (986)
Third Countries	17,6%	47,1%	29,4%	0,0%	5,9%	17 (28)
TOTALE	11,7%	37,8%	31,7%	15,2%	3,5%	854 (993)

Annex 77 - Respondents ability in finding BBPs during shopping per country (NOT working in the bioeconomy sector)

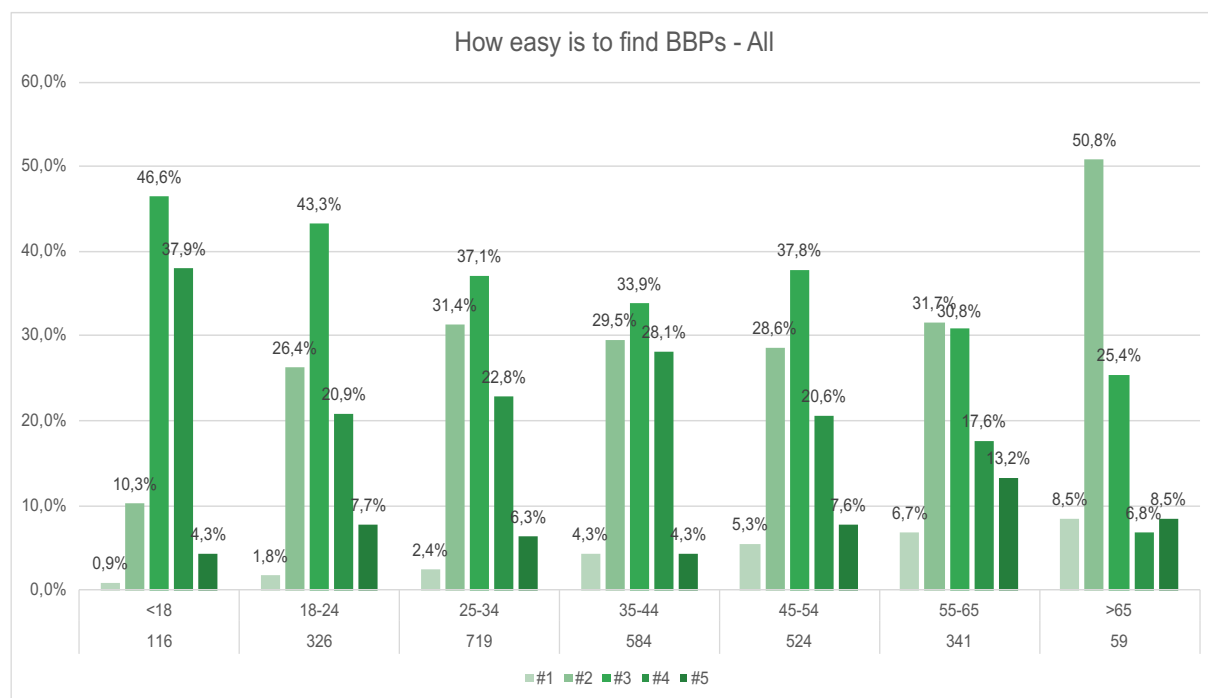


Annex 78 - Respondents ability in finding BBPs during shopping per gender (all)

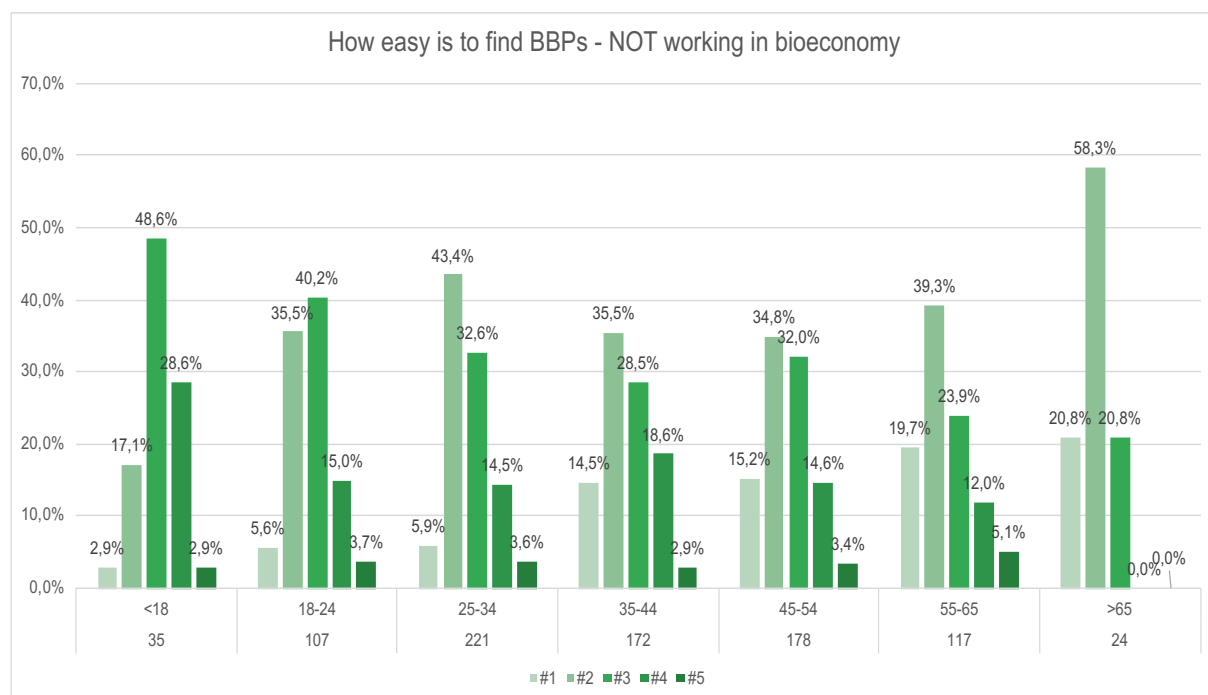


Annex 79 - Respondents ability in finding BBPs during shopping per gender (NOT working in the bioeconomy sector)

From #1 - It is impossible to find them (brightest green) to 5# - They are sold everywhere, and I can easily find them (darkest green).

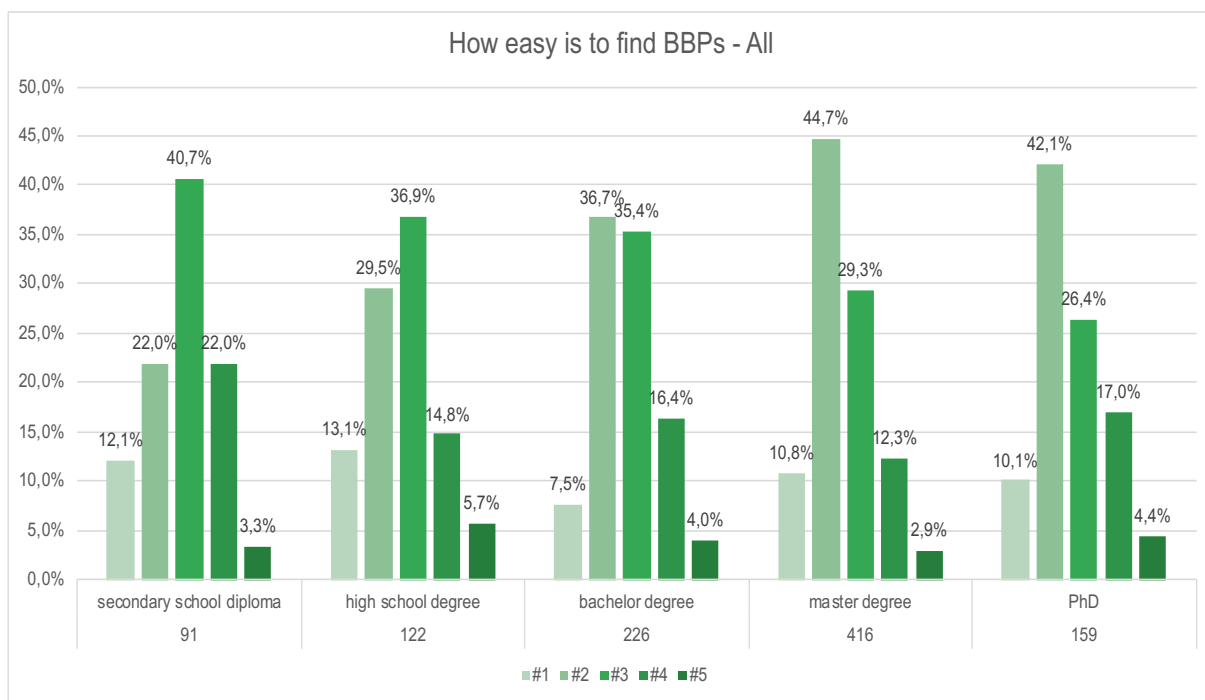


Annex 80 – Respondents ability in finding BBPs per age (all), including the number of respondents per each age group

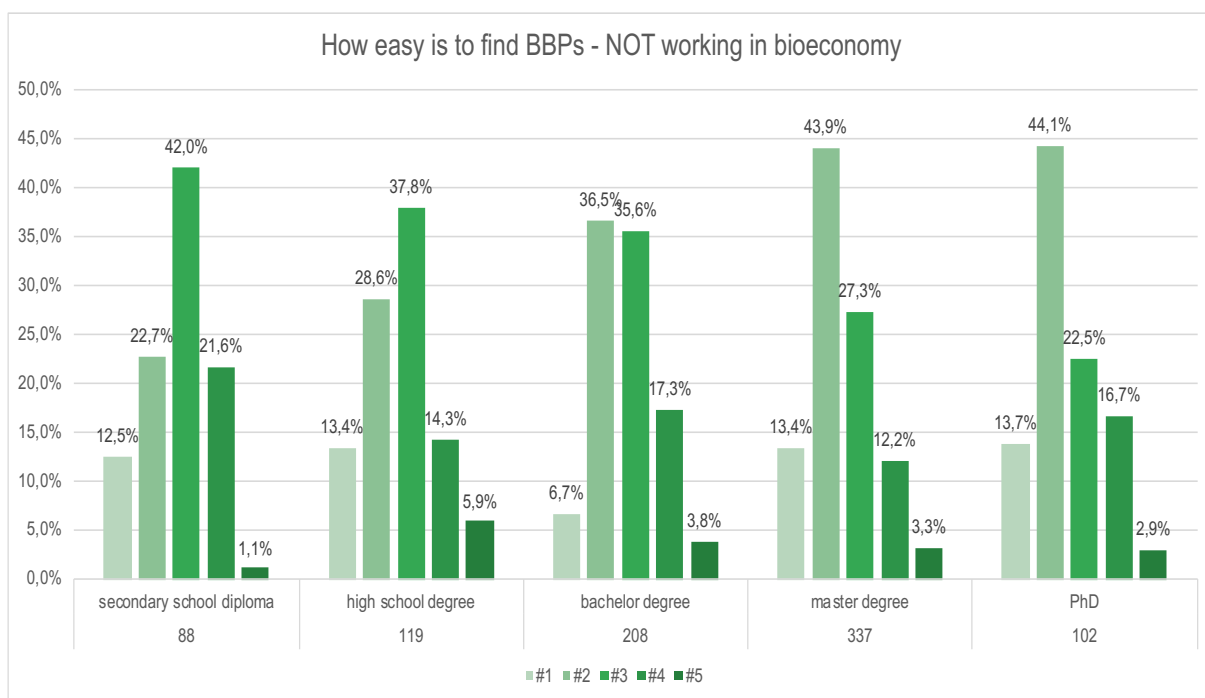


Annex 81 - Respondents ability in finding BBPs per age (NOT working in the bioeconomy sector), including the number of respondents per each age group

From #1 - It is impossible to find them (brightest green) to 5# - They are sold everywhere, and I can easily find them (darkest green).

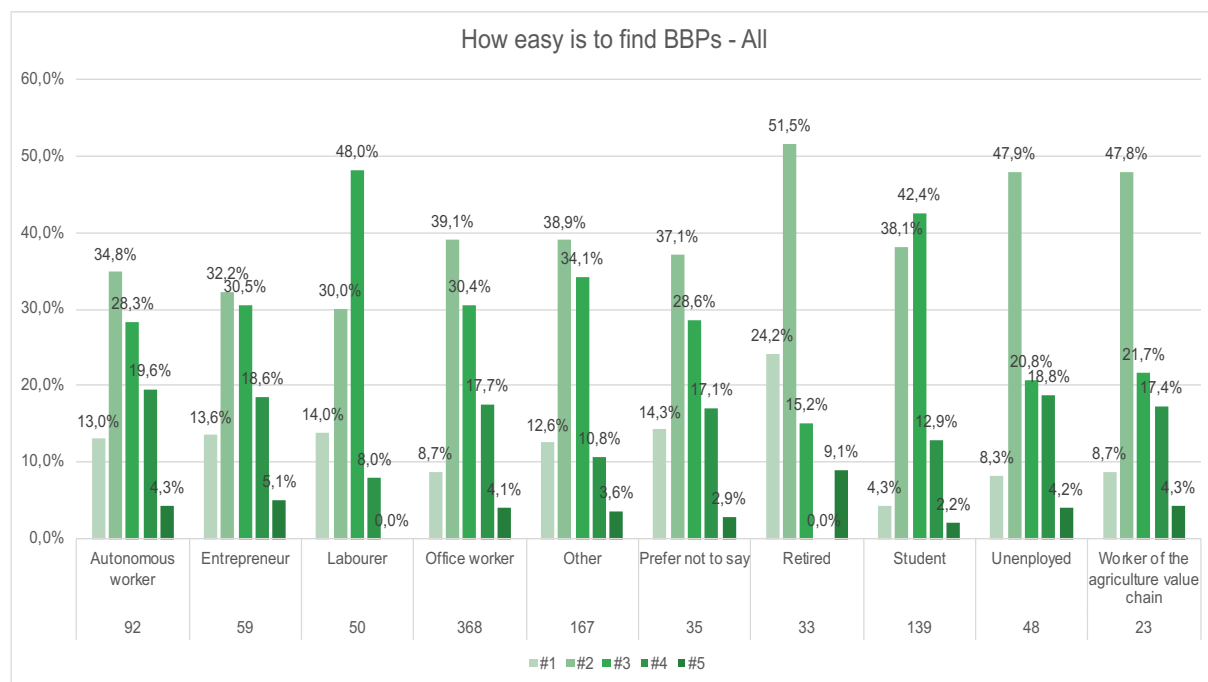


Annex 82 - Respondents ability in finding BBPs per education (all), including the number of respondents per each education group

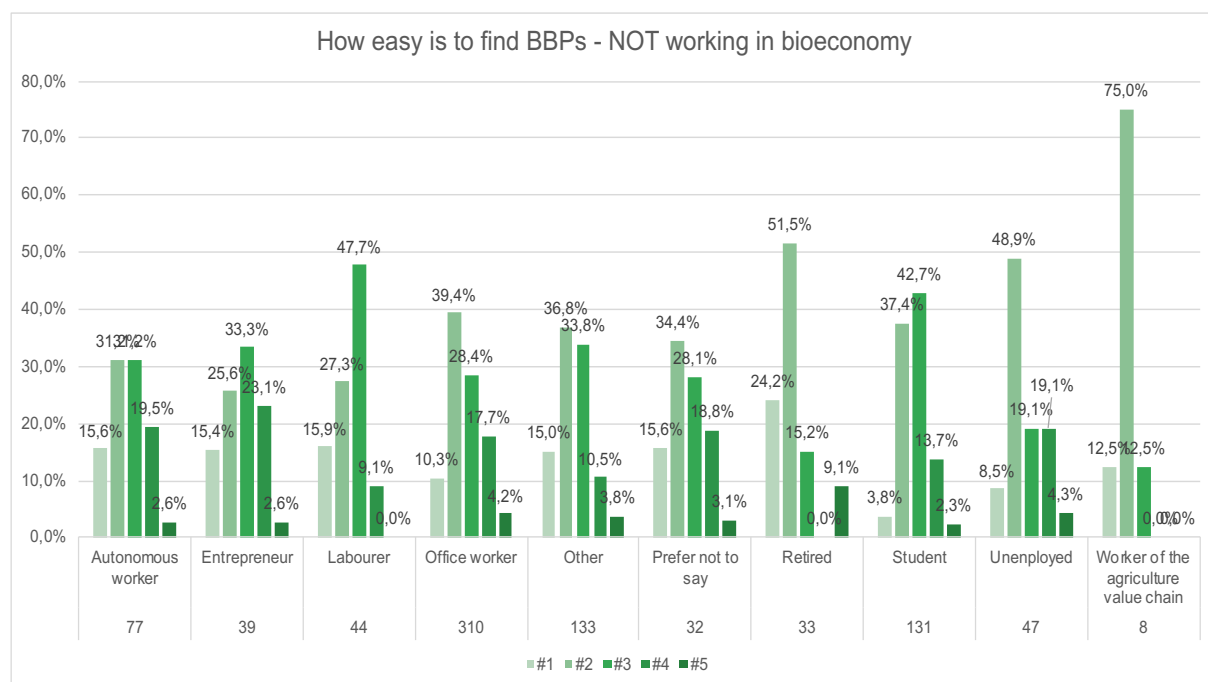


Annex 83 - Respondents ability in finding BBPs per education (NOT working in the bioeconomy sector), including the number of respondents per each education group

From #1 - It is impossible to find them (brightest green) to 5# - They are sold everywhere, and I can easily find them (darkest green).

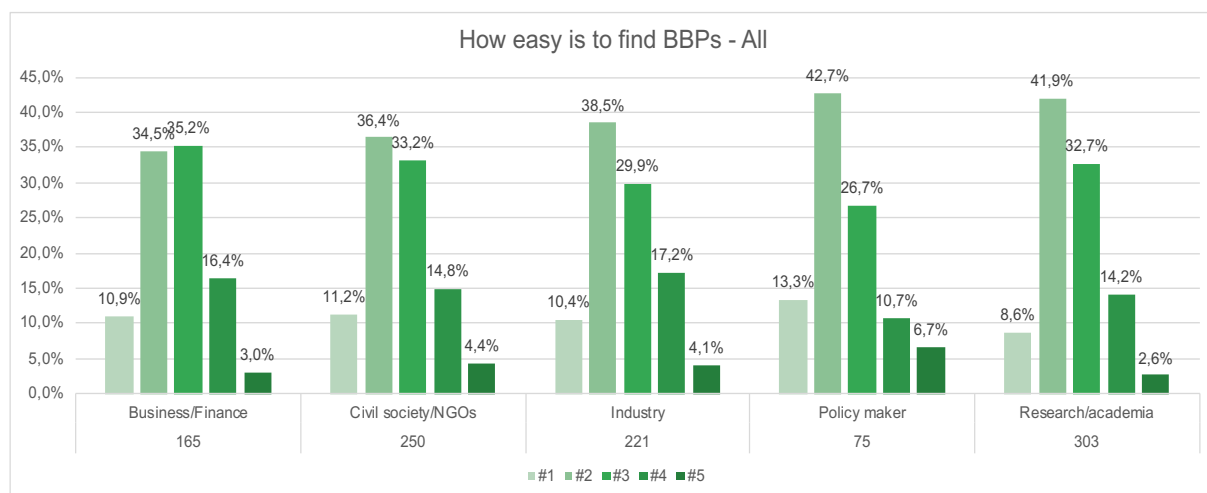


Annex 84 - Respondents ability in finding BBPs per work (all), including the number of respondents per each work group

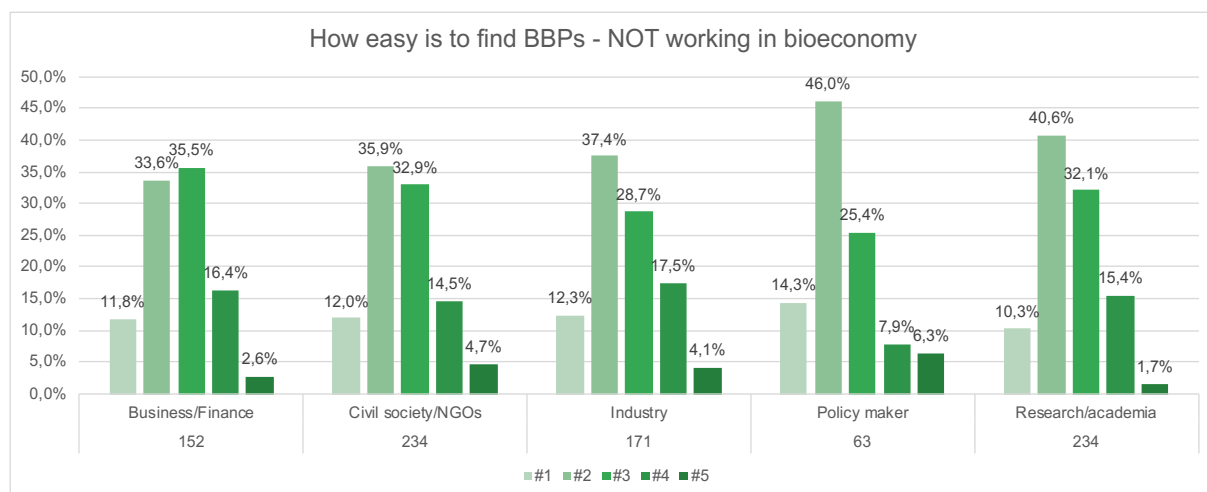


Annex 85 - Respondents ability in finding BBPs per work (NOT working in the bioeconomy sector), including the number of respondents per each work group

From #1 - It is impossible to find them (brightest green) to 5# - They are sold everywhere, and I can easily find them (darkest green).



Annex 86 - Respondents ability in finding BBPs per stakeholder category (all), including the number of respondents per each stakeholder category group



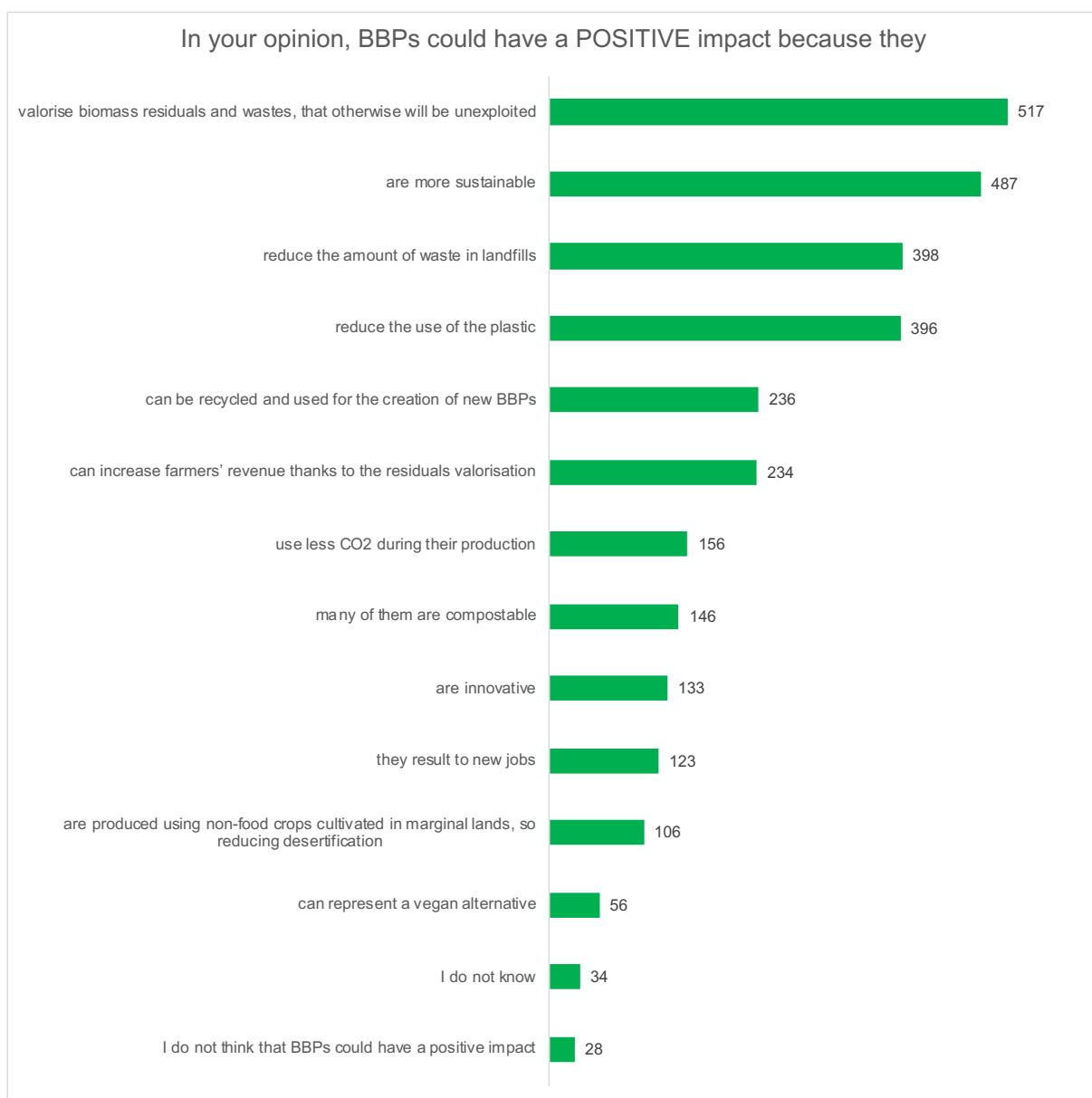
Annex 87 - Respondents ability in finding BBPs per stakeholder category (NOT working in the bioeconomy sector), including the number of respondents per each stakeholder category group

6.2.7. Question 6 – BBPs positive impacts

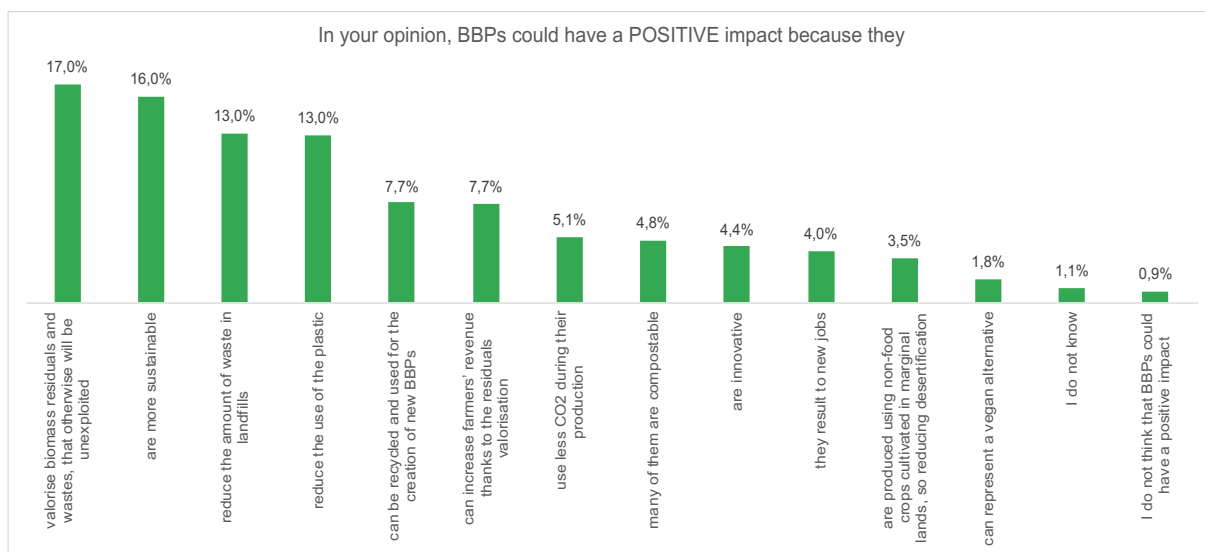
In your opinion, BBPs could have a POSITIVE impact because they (you can choose up to 3 options):

In your opinion, BBPs could have a POSITIVE impact because they	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
valorise biomass residuals and wastes, that otherwise will be unexploited	121	45	28	40	74	33	127	33	16	517
reduce the amount of waste in landfills	84	18	20	38	49	47	107	18	17	398
are more sustainable	106	28	27	16	82	40	104	68	16	487
are innovative	27	8	4	12	17	24	27	5	9	133
they result to new jobs	25	3	2	8	25	18	23	9	10	123
can increase farmers' revenue thanks to the residuals valorisation	50	15	7	14	42	24	42	28	12	234
can represent a vegan alternative	14	5	3	3	3	10	3	6	9	56
reduce the use of the plastic	99	26	23	23	41	50	87	26	21	396
many of them are compostable	38	14	6	5	21	13	25	16	8	146
use less CO2 during their production	33	11	4	9	17	19	32	23	8	156
can be recycled and used for the creation of new BBPs	44	10	13	13	57	23	44	24	8	236
are produced using non-food crops cultivated in marginal lands, so reducing desertification	23	4	1	7	16	15	26	9	5	106
I do not think that BBPs could have a positive impact	4	11	1	0	3	1	4	1	3	28
I do not know	4	2	2	1	8	5	4	7	1	34
										3050

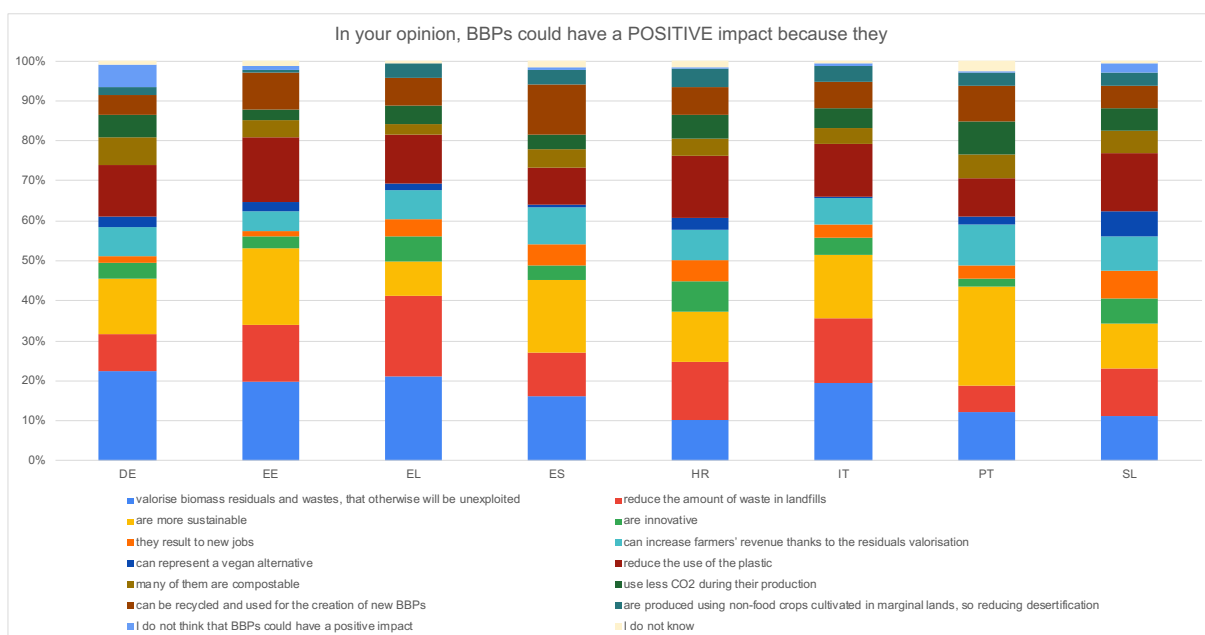
Annex 88 - Number of replies to the question "In your opinion, BBPs could have a POSITIVE impact because they:"



Annex 89 - Number of replies to the question "In your opinion, BBPs could have a POSITIVE impact because they:"



Annex 90 - % of BBPs positive impacts perceived by respondents



Annex 91 - % of BBPs positive impacts perceived by respondents in each language version of the survey

6.2.8. Question 7 – BBPs negative Impacts

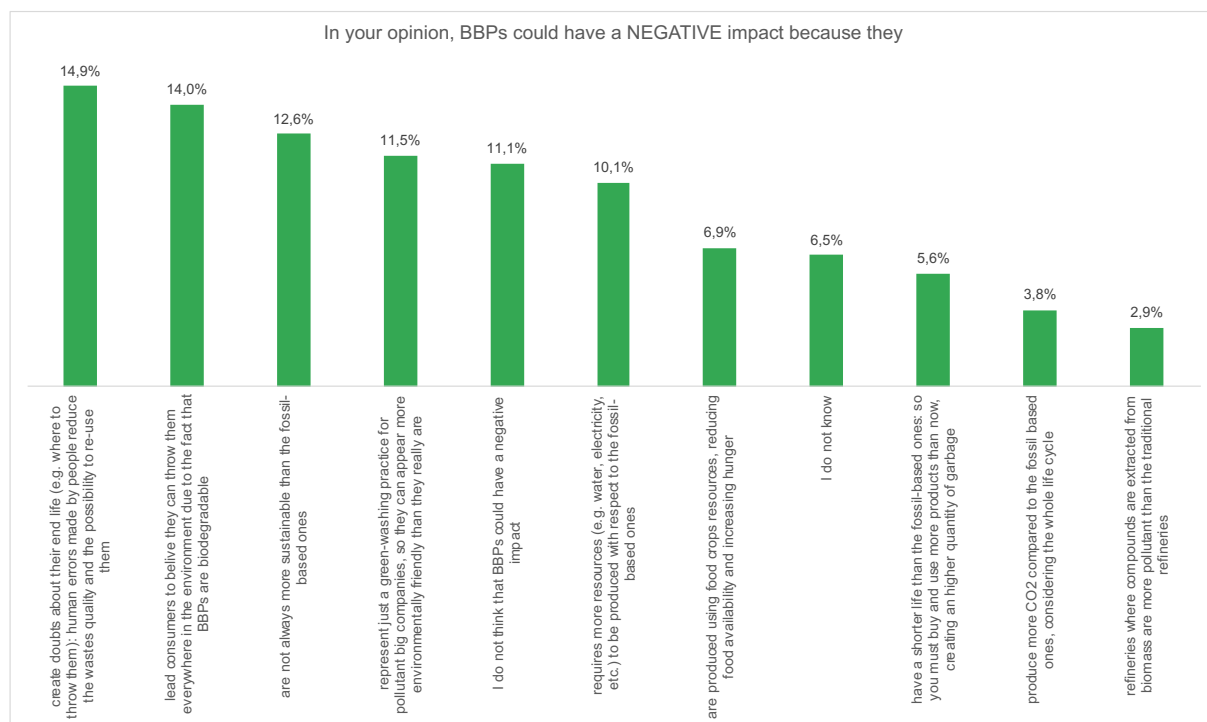
In your opinion, BBPs could have a NEGATIVE impact because they (you can choose up to 3 options):

In your opinion, BBPs could have a NEGATIVE impact because they	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
are not always more sustainable than the fossil-based ones	76	26	8	13	31	23	60	20	8	265
requires more resources (e.g., water, electricity, etc.) to be produced with respect to the fossil-based ones	43	17	11	16	27	26	35	20	19	214
refineries where compounds are extracted from biomass are more pollutant than the traditional refineries	11	0	3	9	8	1	14	7	9	62
represent just a green-washing practice for pollutant big companies, so they can appear more environmentally friendly than they really are	71	28	22	16	28	20	30	14	14	243
lead consumers to believe they can throw them everywhere in the environment due to the fact that BBPs are biodegradable	82	23	15	26	30	29	53	26	12	296
are produced using food crops resources, reducing food availability and increasing hunger	39	23	6	6	22	11	22	11	5	145
produce more CO2 compared to the fossil-based ones, considering the whole life cycle	11	11	5	6	9	10	10	8	10	80
create doubts about their end life (e.g., where to throw them): human errors made by people reduce the wastes quality and the possibility to re-use them	72	20	17	25	51	32	68	23	7	315
have a shorter life than the fossil-based ones: so you must buy and use more products than now, creating an higher quantity of garbage	33	9	8	8	20	17	0	17	7	119
I do not think that BBPs could have a negative impact	24	8	7	10	44	21	81	31	8	234
I do not know	20	9	6	15	24	18	34	11	1	138
										2111

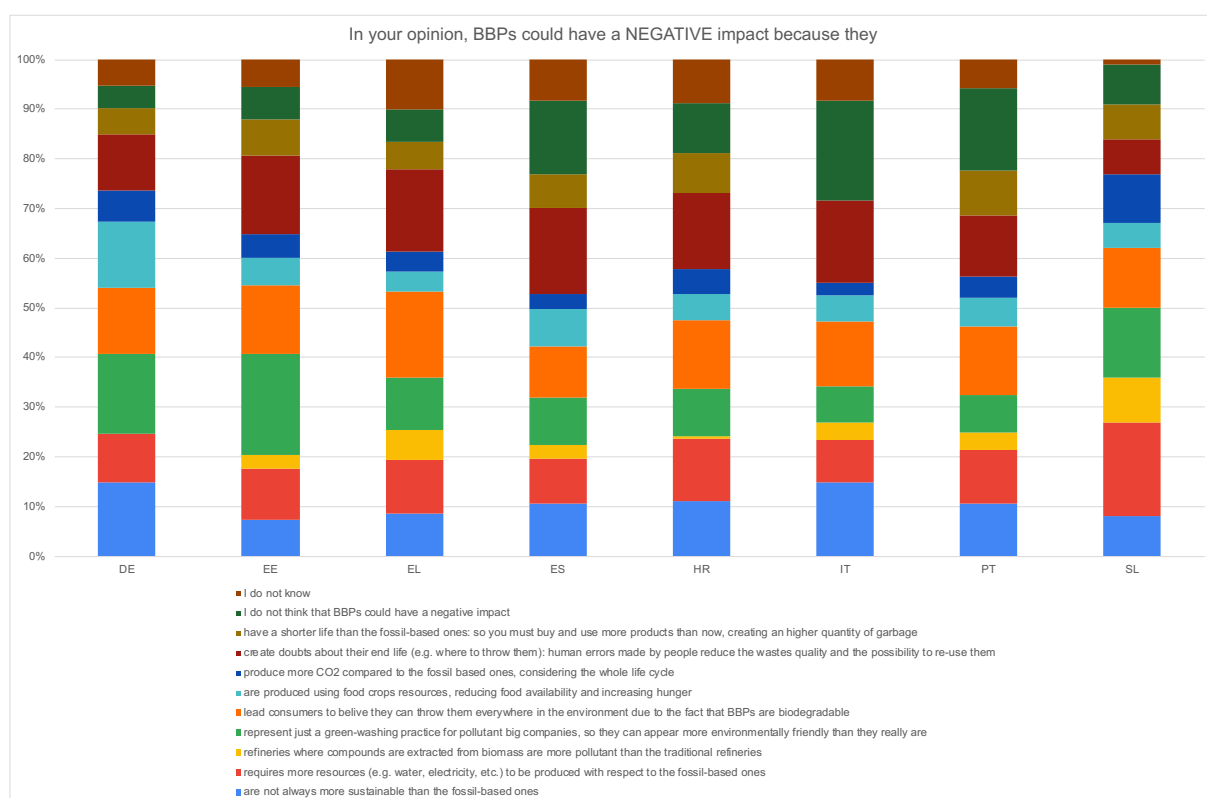
Annex 92 - Number of replies to the question "In your opinion, BBPs could have a NEGATIVE impact because they:"



*Annex 93 - Number of replies to the question “In your opinion, BBPs could have a **NEGATIVE** impact because they:”*



Annex 94 - % of BBPs negative impacts perceived by respondents



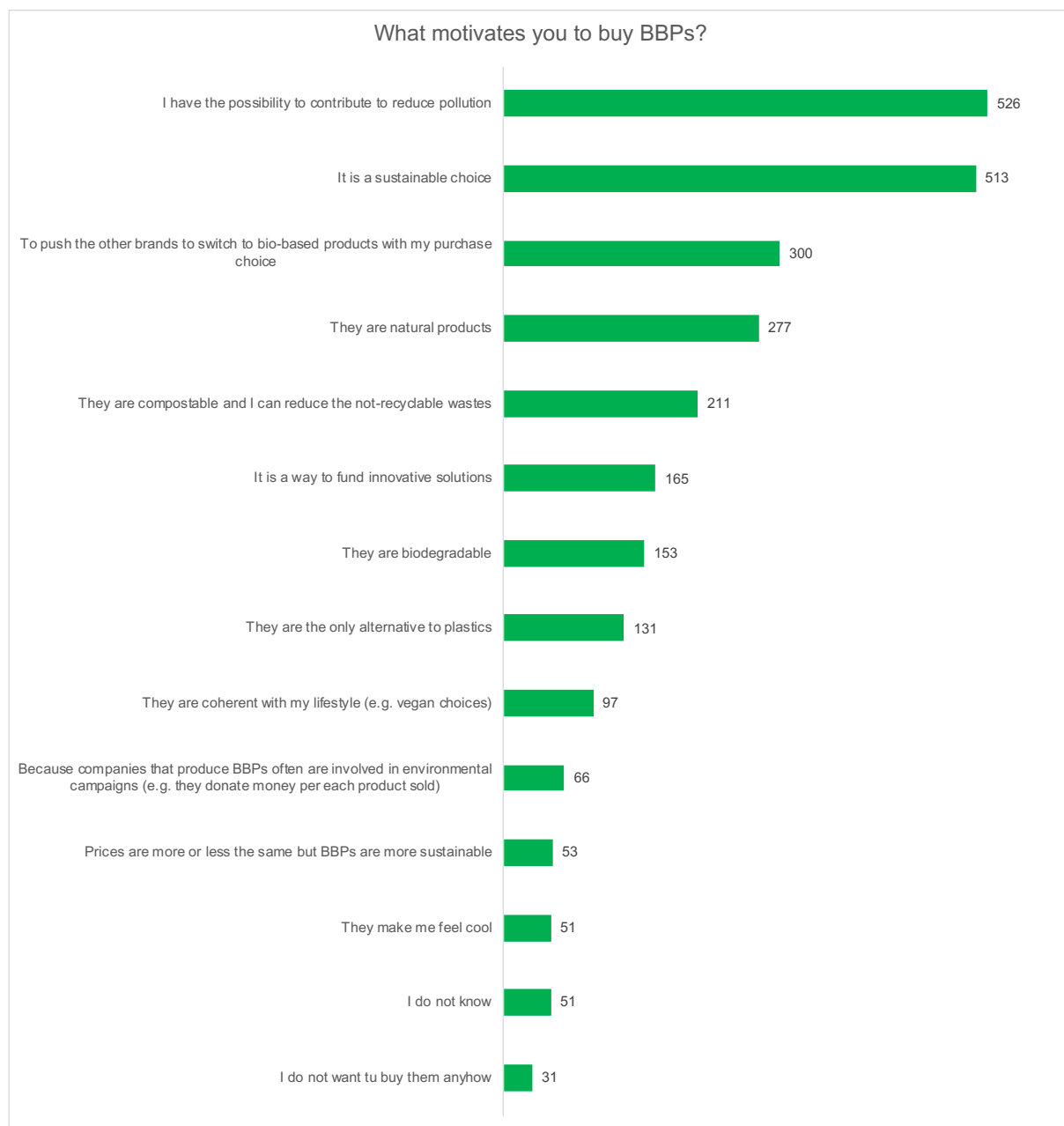
Annex 95 - % of BBPs negative impacts perceived by respondents in each language version of the survey

6.2.9. Question 8 – Why to buy BBPs

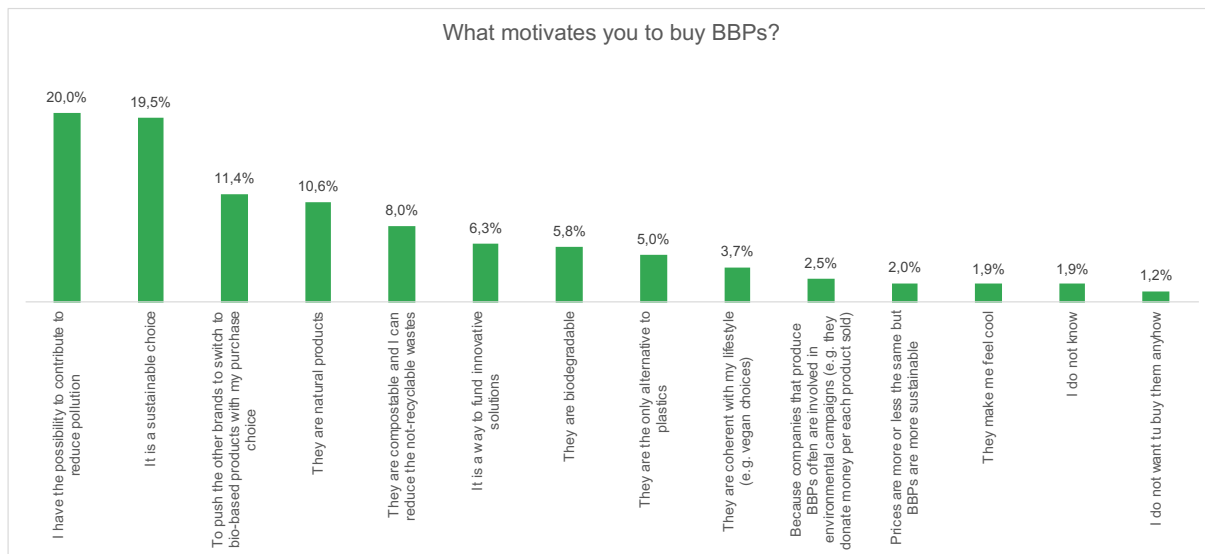
What motivates you to buy BBPs? (you can choose up to 3 options)

What motivates you to buy BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
It is a sustainable choice	118	26	18	24	87	34	147	50	9	513
They are natural products	58	15	16	15	30	32	44	42	25	277
They are the only alternative to plastics	27	7	12	14	22	15	25	5	4	131
I have the possibility to contribute to reduce pollution	110	30	27	35	77	54	123	50	20	526
It is a way to fund innovative solutions	29	14	6	10	30	17	32	17	10	165
They are coherent with my lifestyle (e.g., vegan choices)	19	4	6	8	13	12	11	15	9	97
They make me feel cool	4	2	2	0	7	3	2	20	11	51
Because companies that produce BBPs often are involved in environmental campaigns	18	1	1	6	10	5	13	6	6	66
To push the other brands to switch to bio-based products with my purchase choice	73	30	11	21	48	22	68	26	1	300
Prices are more or less the same but BBPs are more sustainable	11	7	1	1	7	4	12	6	4	53
They are compostable and I can reduce the not-recyclable wastes	48	14	15	8	26	17	67	4	12	211
They are biodegradable	33	10	5	10	26	25	30	8	6	153
I do not want to buy them anyhow	9	11	1	1	3	0	1	3	2	31
I do not know	7	6	1	7	13	9	7	0	1	51
										2625

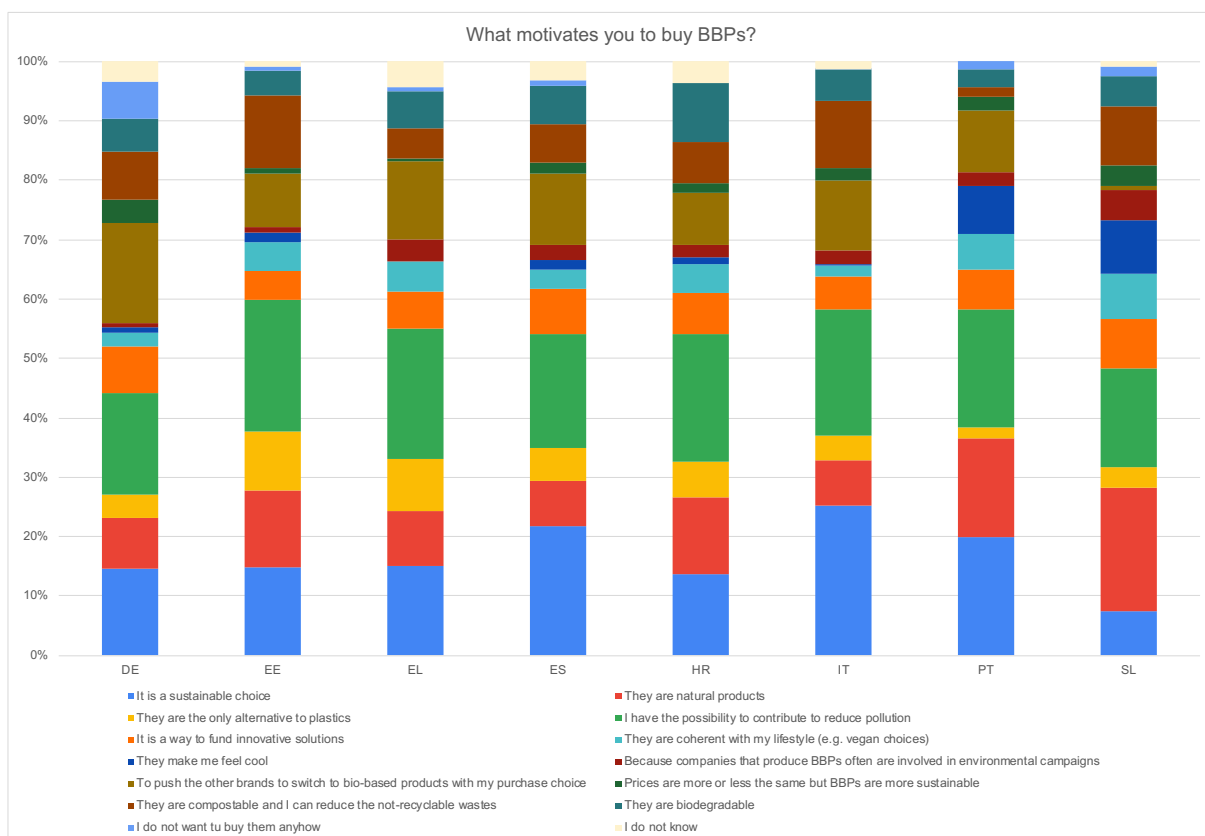
Annex 96 - Number of replies to the question “What motivates you to buy BBPs?”



Annex 97 - Number of replies to the question "What motivates you to buy BBPs?"



Annex 98 - % of motivation to buy BBPs



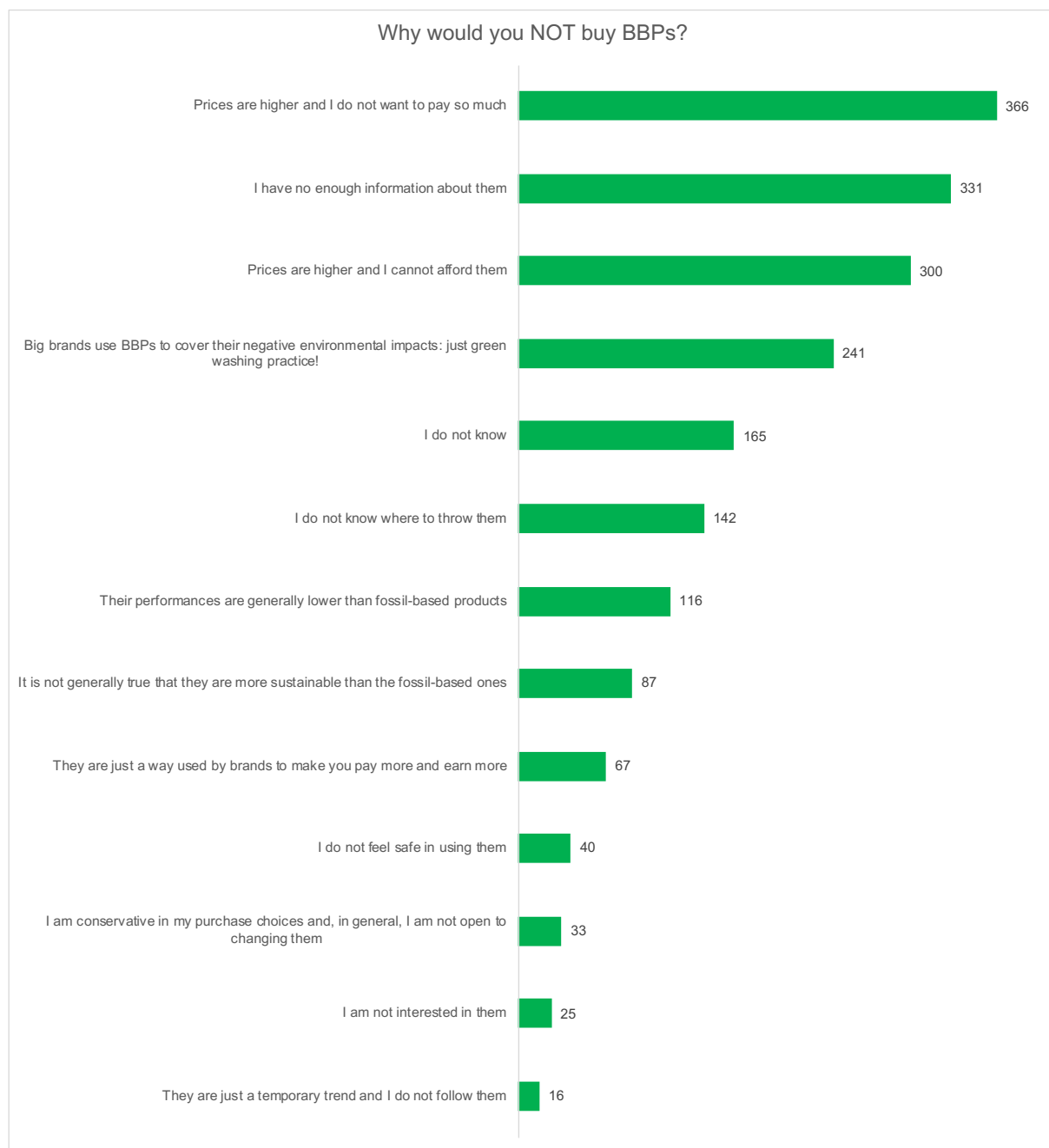
Annex 99 - % of motivation to buy BBPs of respondents in each language version of the survey

6.2.10. Question 9 – Why to NOT buy BBPs?

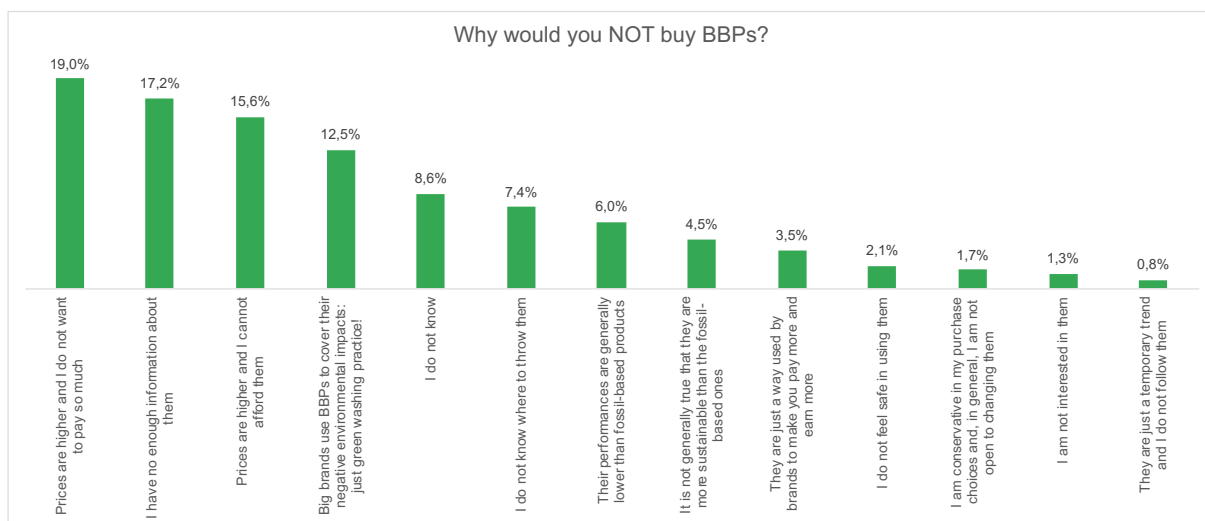
Why would you NOT buy BBPs? (you can choose up to 3 options):

Why would you NOT buy BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
Big brands use BBPs to cover their negative environmental impacts: just green washing practice!	66	25	8	15	34	25	43	16	9	241
I do not feel safe in using them	8	4	1	0	6	3	10	3	5	40
Their performances are generally lower than fossil-based products	27	5	7	7	15	7	33	6	9	116
Prices are higher and I do not want to pay so much	82	22	23	16	51	36	72	50	14	366
Prices are higher and I cannot afford them	62	15	14	32	47	12	55	51	12	300
I do not know where to throw them	21	8	5	12	13	1	69	2	11	142
I am conservative in my purchase choices and, in general, I am not open to changing them	9	1	0	2	5	3	5	5	3	33
It is not generally true that they are more sustainable than the fossil-based ones	34	16	3	2	8	3	10	6	5	87
I have no enough information about them	68	21	20	31	59	31	63	29	9	331
I am not interested in them	3	6	1	0	3	1	3	3	5	25
They are just a temporary trend and I do not follow them	5	2	1	1	1	0	2	2	2	16
They are just a way used by brands to make you pay more and earn more	19	10	4	2	10	6	5	5	6	67
I do not know	27	14	8	9	25	35	40	0	7	165
										1929

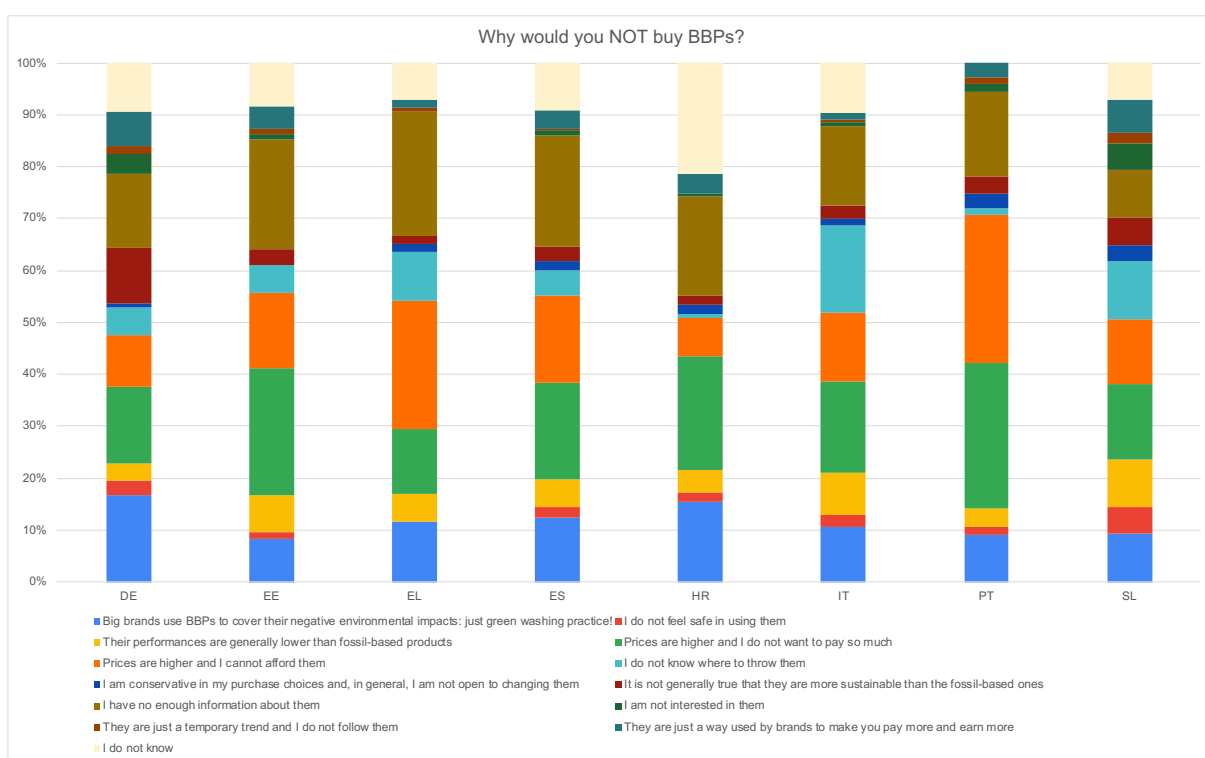
Annex 100 - Number of replies to the question "Why would you NOT buy BBPs?"



Annex 101 - Number of replies to the question "Why would you NOT buy BBPs?"



Annex 102 - % of motivation to NOT buy BBPs



Annex 103 - % of motivation to NOT buy BBPs of respondents in each language version of the survey

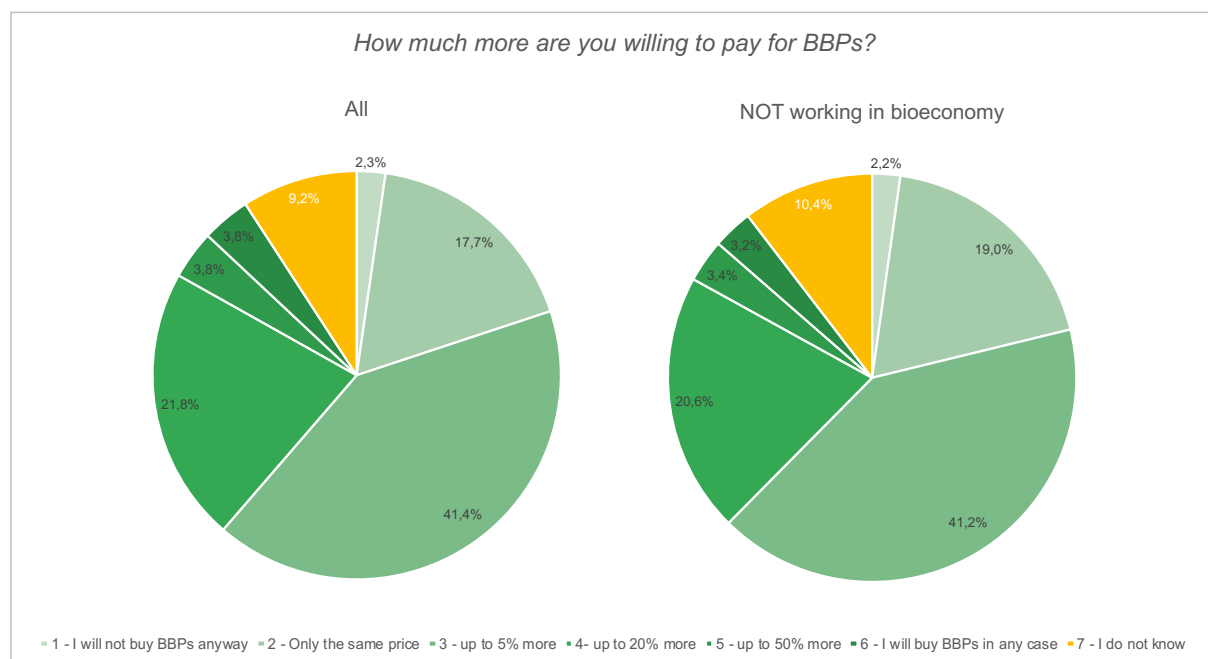
6.2.11. Question 10 – BBPs price

How much more are you willing to pay for BBPs compared to the fossil-based ones?

- The price does not matter, I will not buy BBPs anyway
- I am available to pay only the same price
- up to 5% more
- up to 20% more
- up to 50% more
- I will buy BBPs in any case, the price does not matter to me
- I do not know

How much more are you willing to pay for BBPs	Working in bioeconomy	NOT working in bioeconomy	Total
1 - I will not buy BBPs anyway	4	19	23
2 - Only the same price	17	162	179
3 - up to 5% more	68	352	420
4- up to 20% more	45	176	221
5 - up to 50% more	10	29	39
6 - I will buy BBPs in any case	12	27	39
7 - I do not know	4	89	93

Annex 104 - Number of replies to the question "How much more are you willing to pay for BBPs compared to the fossil-based ones?"



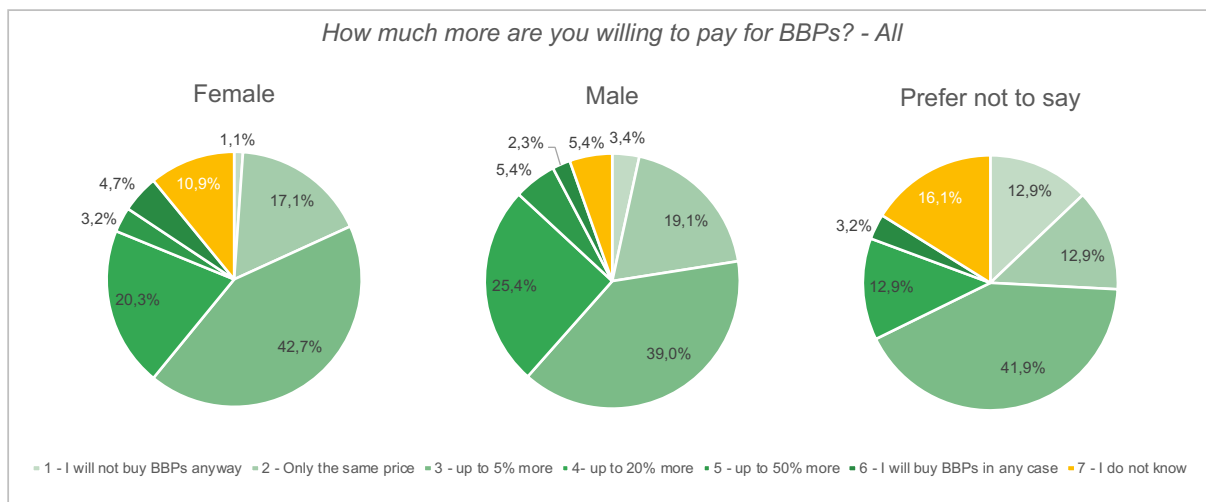
Annex 105 - % of availability to pay more for BBPs compared to fossil-based products – all vs. NOT working in the bioeconomy sector

Country	1 - I will not buy BBPs anyway	2 - Only the same price	3 - up to 5% more	4- up to 20% more	5 - up to 50% more	6 - I will buy BBPs in any case	7 - I do not know	Total
Belgium	0,0%	30,8%	53,8%	15,4%	0,0%	0,0%	0,0%	13
Croatia	2,2%	19,4%	37,6%	19,4%	6,5%	4,3%	10,8%	93
Estonia	2,0%	11,8%	41,2%	27,5%	5,9%	2,0%	9,8%	51
France	0,0%	7,7%	30,8%	38,5%	7,7%	0,0%	15,4%	13
Germany	4,1%	13,5%	32,4%	24,3%	9,5%	4,1%	12,2%	74
Greece	1,4%	22,2%	44,4%	19,4%	1,4%	2,8%	8,3%	72
Hungary	0,0%	12,5%	31,3%	56,3%	0,0%	0,0%	0,0%	16
Italy	2,2%	16,1%	45,7%	16,1%	3,5%	7,4%	9,1%	230
Portugal	1,9%	21,0%	42,9%	17,1%	2,9%	3,8%	10,5%	105
Slovakia	4,8%	21,4%	40,5%	21,4%	4,8%	0,0%	7,1%	42
Spain	1,3%	17,8%	44,6%	21,7%	0,6%	0,6%	13,4%	157
Netherlands	2,6%	10,3%	47,4%	30,8%	1,3%	2,6%	5,1%	78
UK	9,5%	52,4%	14,3%	9,5%	4,8%	4,8%	4,8%	21
EU	2,3%	17,7%	41,7%	21,4%	3,5%	3,9%	9,4%	986
Third Countries	0,0%	14,3%	32,1%	35,7%	14,3%	3,6%	0,0%	28
TOTAL	2,3%	17,7%	41,4%	21,8%	3,8%	3,8%	9,2%	993

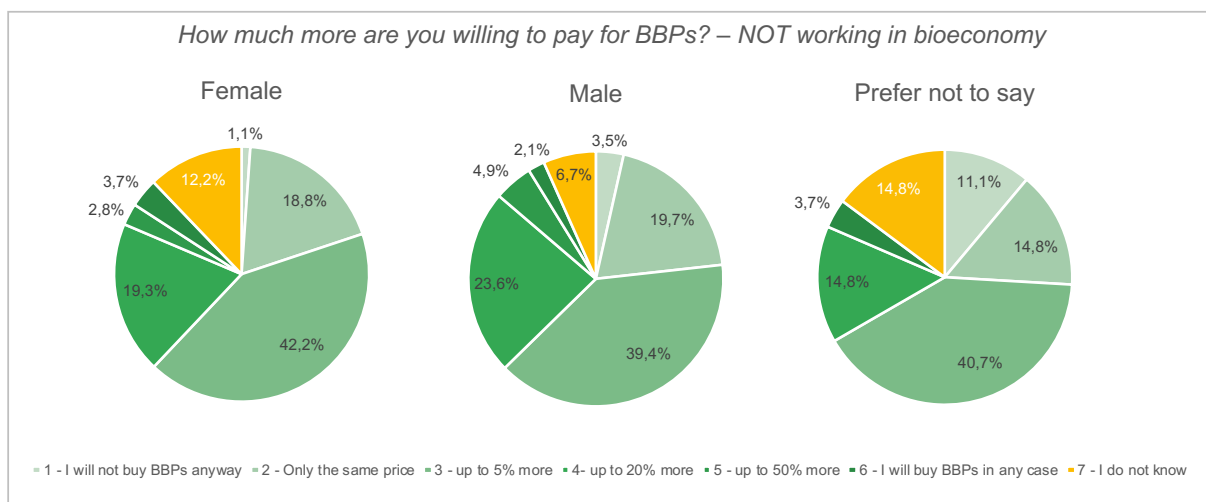
Annex 106 - Respondents availability to pay more for BBPs compared to fossil-based products per country (all)

Country	1 - I will not buy BBPs anyway	2 - Only the same price	3 - up to 5% more	4- up to 20% more	5 - up to 50% more	6 - I will buy BBPs in any case	7 - I do not know	Total
Belgium	0,0%	50,0%	25,0%	25,0%	0,0%	0,0%	0,0%	4 (13)
Croatia	2,3%	19,3%	39,8%	19,3%	4,5%	3,4%	11,4%	88 (93)
Estonia	2,0%	10,2%	42,9%	26,5%	6,1%	2,0%	10,2%	49 (51)
France	0,0%	20,0%	20,0%	20,0%	0,0%	0,0%	40,0%	5 (13)
Germany	4,9%	16,4%	32,8%	19,7%	8,2%	4,9%	13,1%	61 (74)
Greece	0,0%	22,4%	46,3%	19,4%	1,5%	1,5%	9,0%	67 (72)
Hungary	0,0%	20,0%	30,0%	50,0%	0,0%	0,0%	0,0%	10 (16)
Italy	2,1%	19,1%	42,0%	14,9%	3,7%	7,4%	10,6%	188 (230)
Portugal	2,1%	19,6%	42,3%	17,5%	3,1%	4,1%	11,3%	97 (105)
Slovakia	4,9%	22,0%	39,0%	22,0%	4,9%	0,0%	7,3%	41 (42)
Spain	0,0%	19,5%	44,5%	20,3%	0,0%	0,0%	15,6%	128 (157)
Netherlands	2,7%	10,8%	47,3%	31,1%	1,4%	1,4%	5,4%	74 (78)
UK	11,8%	52,9%	17,6%	11,8%	5,9%	0,0%	0,0%	17 (21)
EU	2,3%	19,0%	41,3%	20,3%	3,2%	3,2%	10,6%	837 (986)
Third Countries	0,0%	17,6%	35,3%	35,3%	11,8%	0,0%	0,0%	17 (28)
TOTAL	2,2%	19,0%	41,2%	20,6%	3,4%	3,2%	10,4%	854 (993)

Annex 107 - Respondents availability to pay more for BBPs compared to fossil-based products per country (NOT working in the bioeconomy sector)

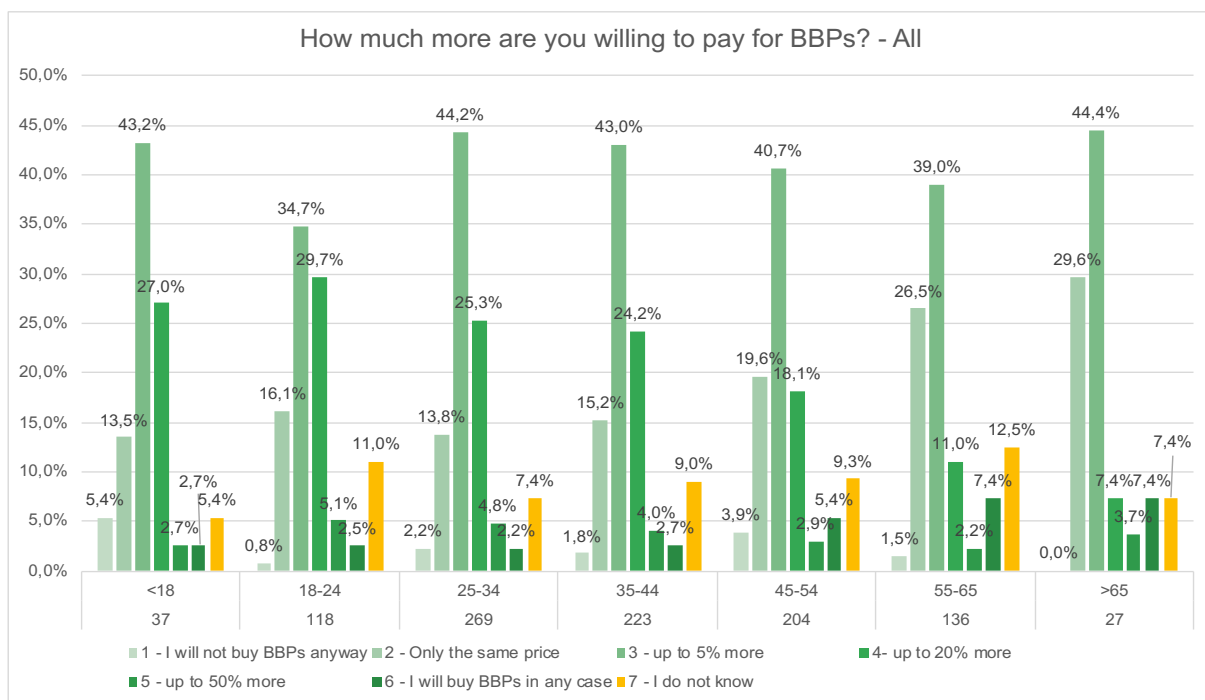


Annex 108 - Respondents availability to pay more for BBPs compared to fossil-based products per gender (all)

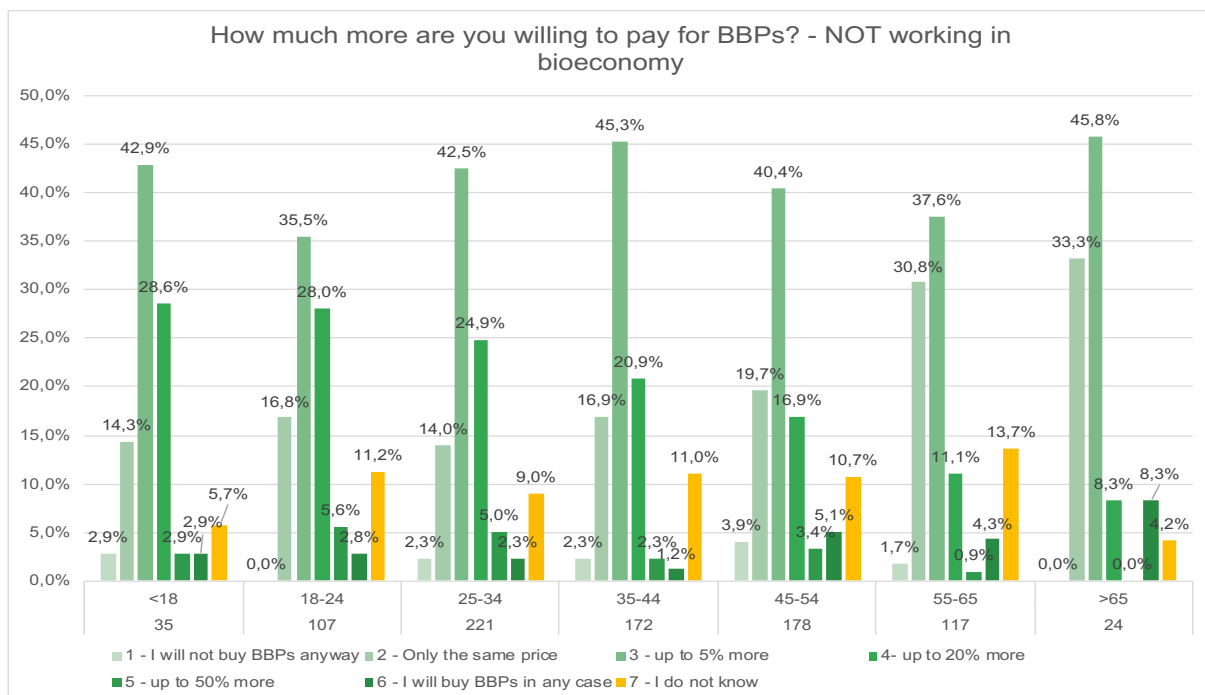


Annex 109 - Respondents availability to pay more for BBPs compared to fossil-based products per gender (NOT working in the bioeconomy sector)

From #1 – I will not buy BBPs anyway (brightest green) to 6# - I will buy BBPs in any case (darkest green). In yellow, #7 – I do not know.

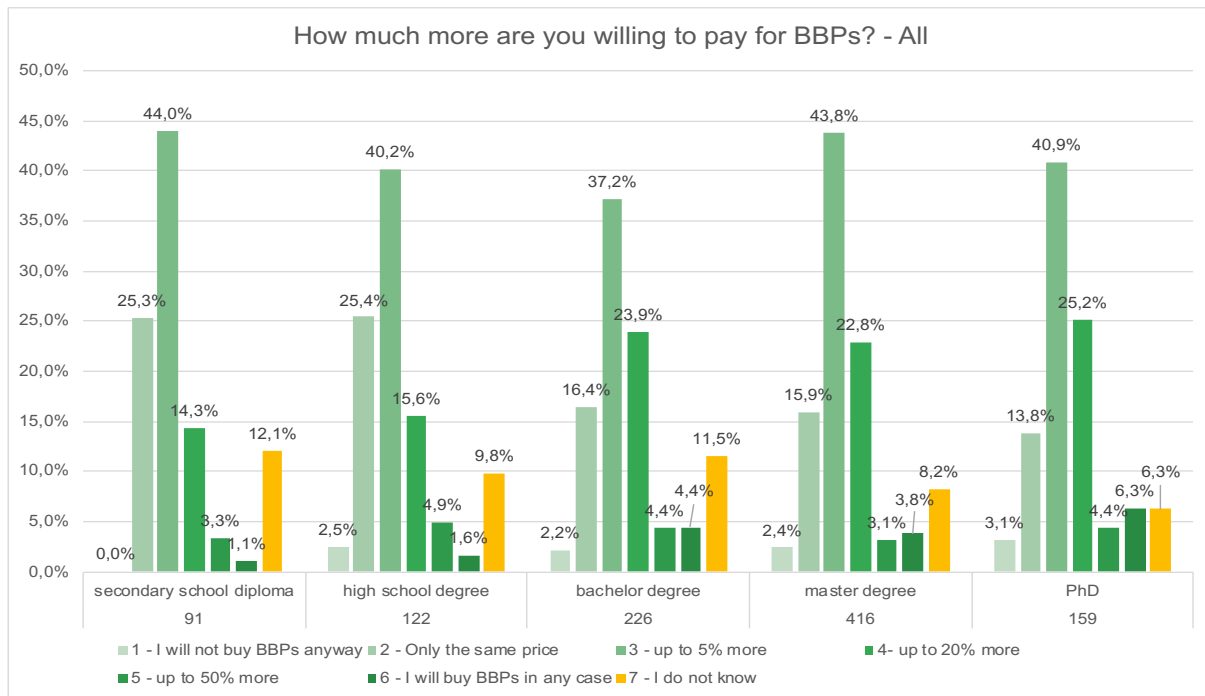


Annex 110 - Respondents availability to pay more for BBPs compared to fossil-based products per age (all), including the number of respondents per each age group

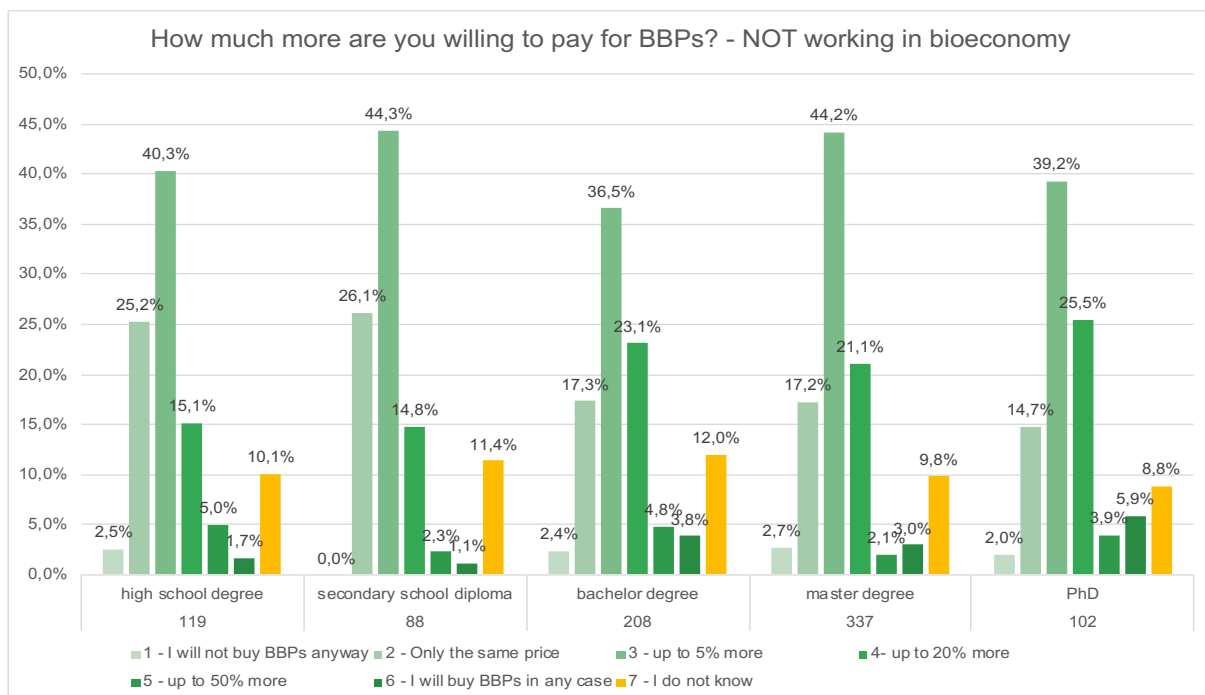


Annex 111 - Respondents availability to pay more for BBPs compared to fossil-based products per age (NOT working in the bioeconomy sector), including the number of respondents per each age group

From #1 – I will not buy BBPs anyway (brightest green) to 6# - I will buy BBPs in any case (darkest green). In yellow, #7 – I do not know.

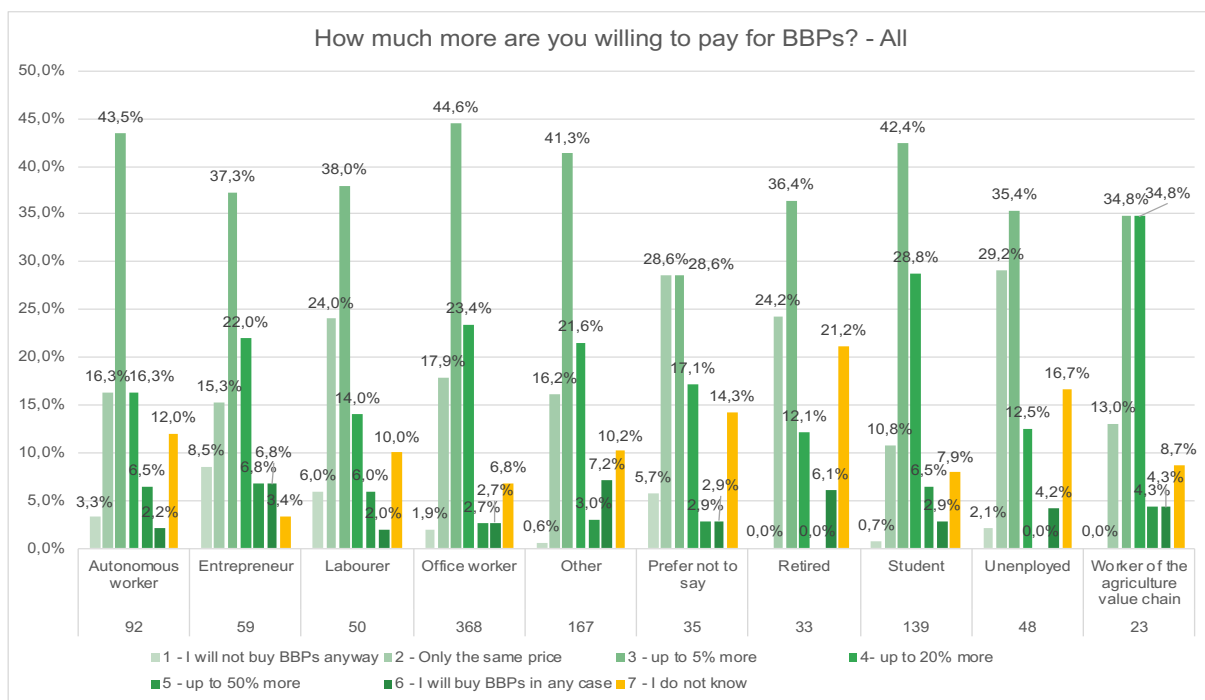


Annex 112 - Respondents availability to pay more for BBPs compared to fossil-based products per education (all), including the number of respondents per each education group

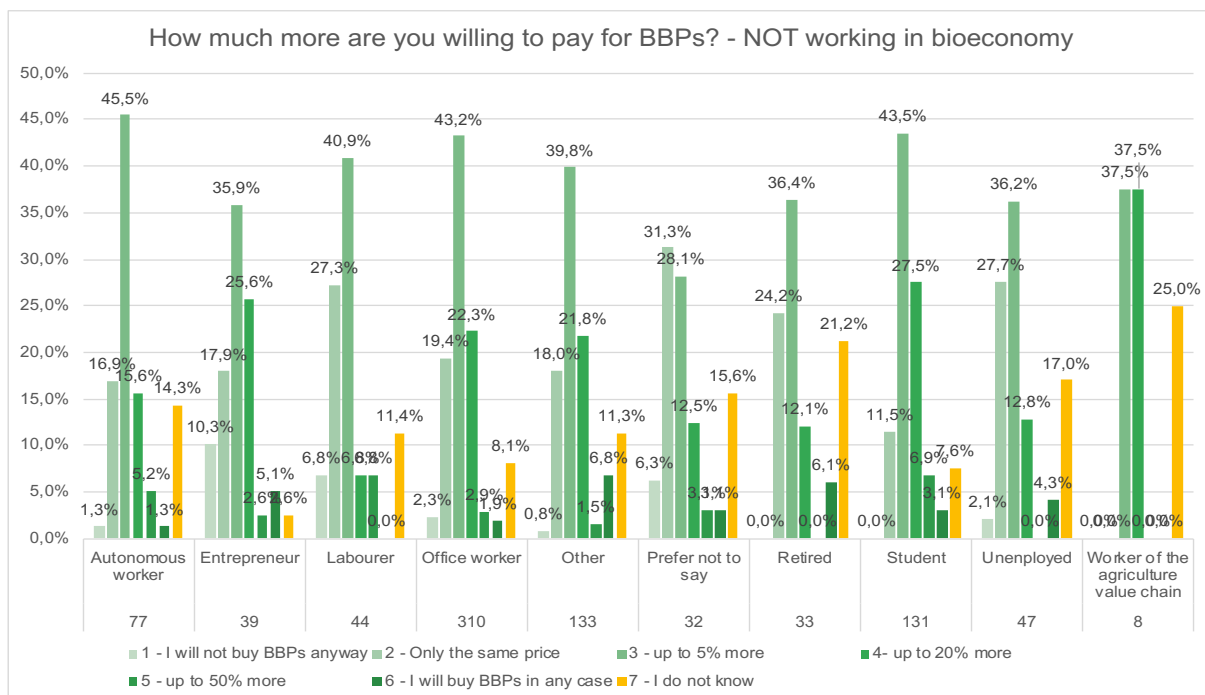


Annex 113 - Respondents availability to pay more for BBPs compared to fossil-based products per education (NOT working in the bioeconomy sector), including the number of respondents per each education group

From #1 – I will not buy BBPs anyway (brightest green) to 6# - I will buy BBPs in any case (darkest green). In yellow, #7 – I do not know.

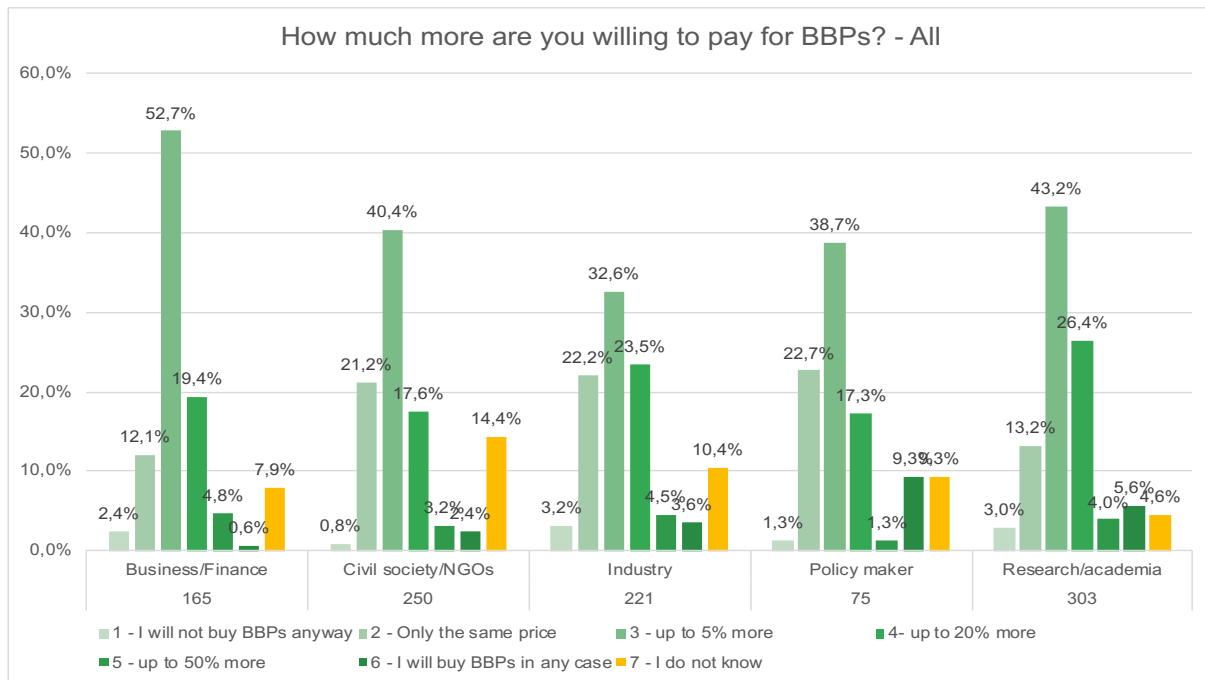


Annex 114 - Respondents availability to pay more for BBPs compared to fossil-based products per work (all), including the number of respondents per each work group

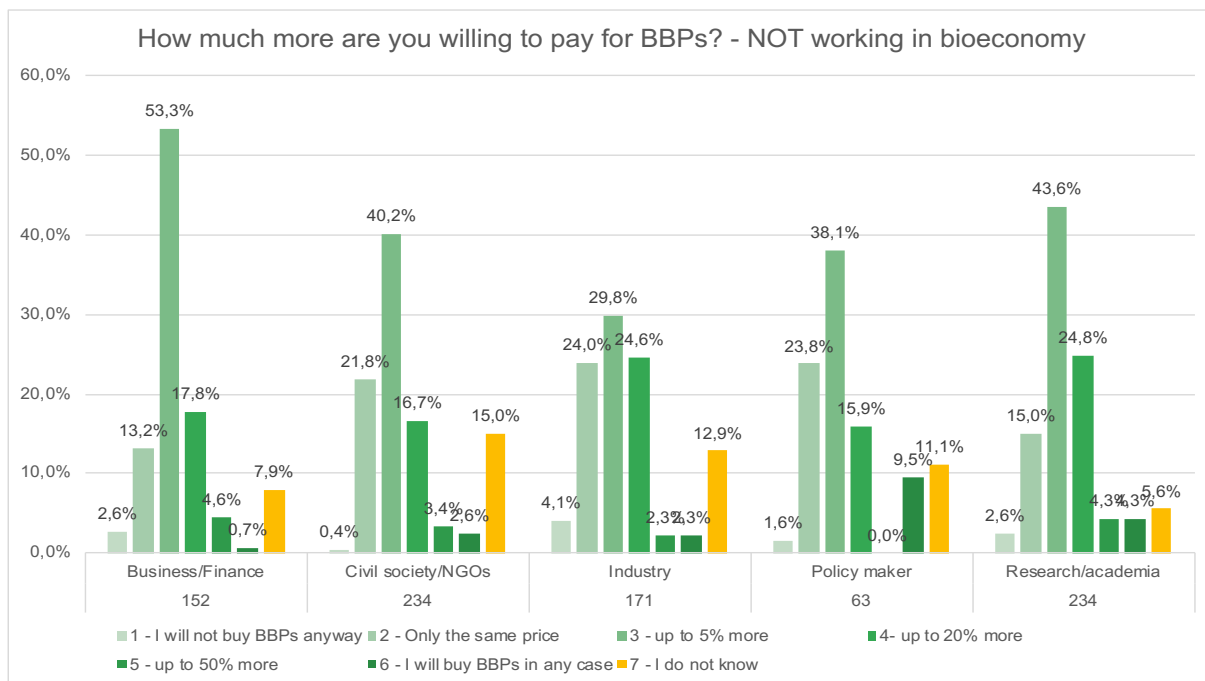


Annex 115 - Respondents availability to pay more for BBPs compared to fossil-based products per work (NOT working in the bioeconomy sector), including the number of respondents per each work group

From #1 – I will not buy BBPs anyway (brightest green) to 6# - I will buy BBPs in any case (darkest green). In yellow, #7 – I do not know.



Annex 116 - Respondents availability to pay more for BBPs compared to fossil-based products per stakeholder category (all), including the number of respondents per each stakeholder category group



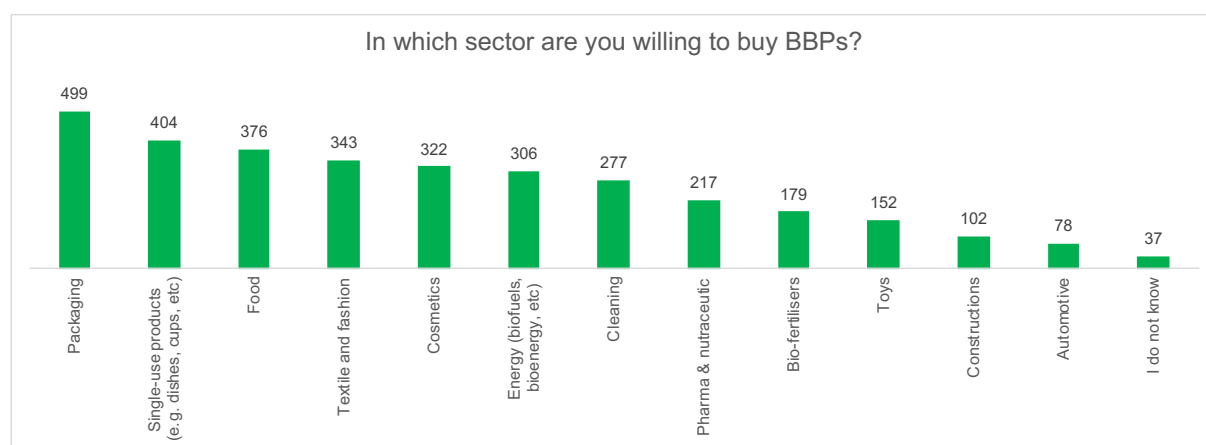
Annex 117 - Respondents availability to pay more for BBPs compared to fossil-based products per stakeholder category (NOT working in the bioeconomy sector), including the number of respondents per each stakeholder category group

6.2.12. Question 11 – Sectors: willing to buy BBPs

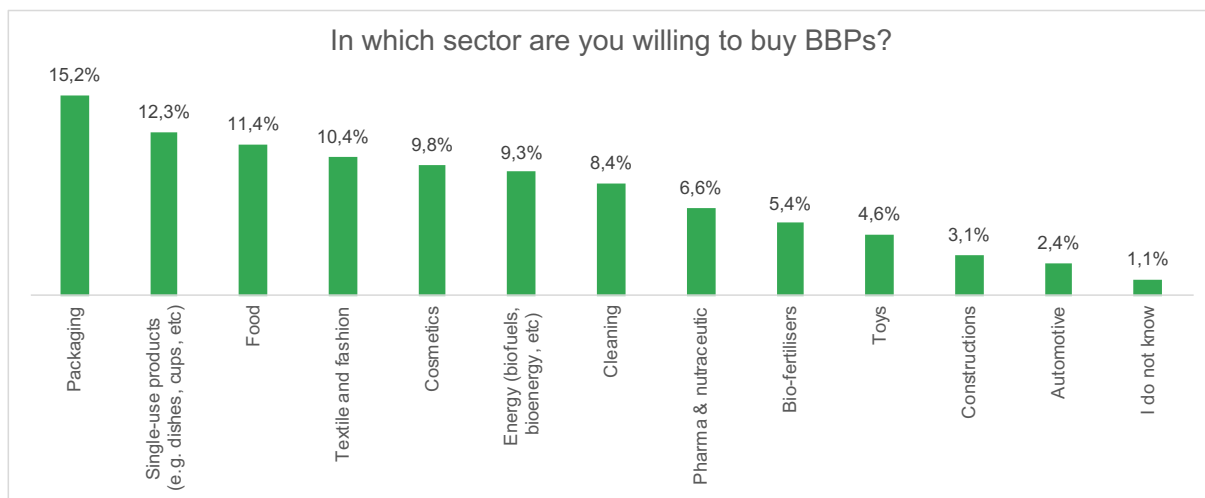
In which sector are you willing to buy BBPs? (you can choose up to 3 options)

In which sector are you willing to buy BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
Pharma & nutraceutic	36	8	7	10	43	32	43	31	7	217
Cosmetics	62	17	17	13	42	49	64	39	19	322
Packaging	127	36	32	34	92	29	103	36	10	499
Automotive	21	6	2	8	12	7	10	7	5	78
Toys	32	8	8	8	24	18	28	14	12	152
Single-use products (e.g. dishes, cups, etc)	91	24	27	34	52	26	121	18	11	404
Textile and fashion	94	25	22	11	48	30	62	34	17	343
Constructions	25	6	6	6	12	12	19	6	10	102
Cleaning	72	21	16	17	45	14	55	32	5	277
Energy (biofuels, bioenergy, etc)	62	16	9	21	55	22	87	25	9	306
Bio-fertilisers	36	10	9	13	33	9	42	20	7	179
Food	80	27	16	21	54	42	54	61	21	376
I do not know	10	5	2	5	1	4	7	2	1	37
										3292

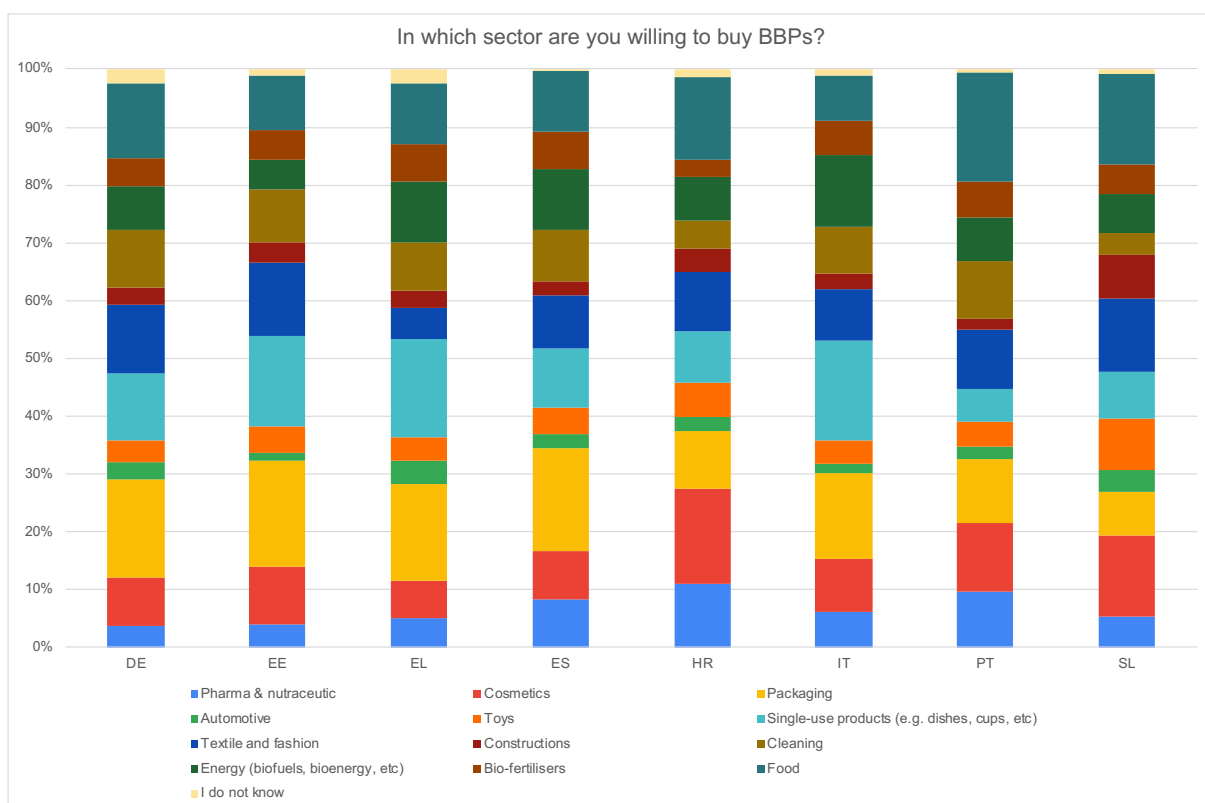
Annex 118 - Number of replies to the question "In which sector are you willing to buy BBPs?"



Annex 119 - Number of replies to the question "In which sector are you willing to buy BBPs?"



Annex 120 - % of sectors in which respondents would buy BBPs



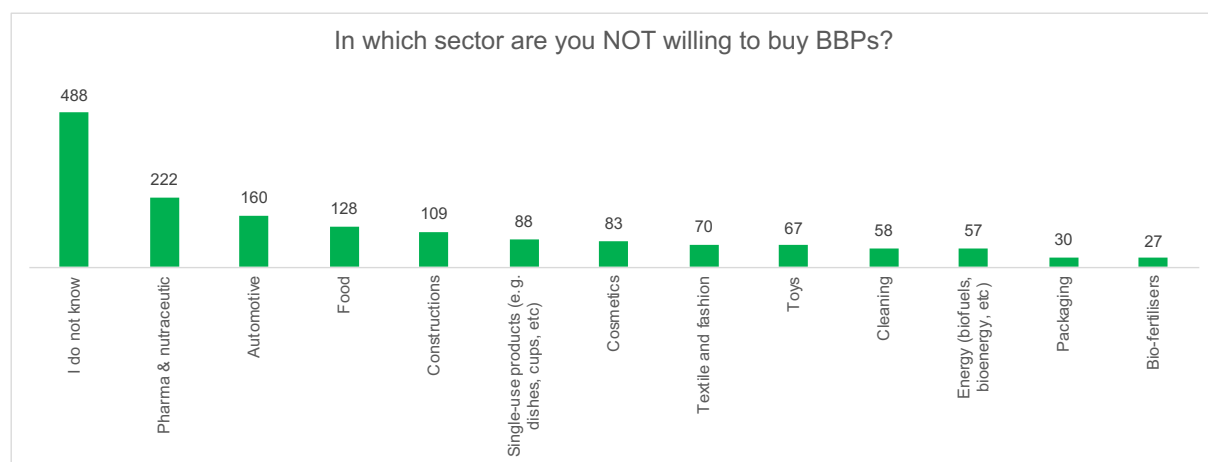
Annex 121 - % of sectors in which respondents in each language version of the survey would buy BBPs

6.2.13. Question 12 – Sectors: NOT willing to buy BBPs

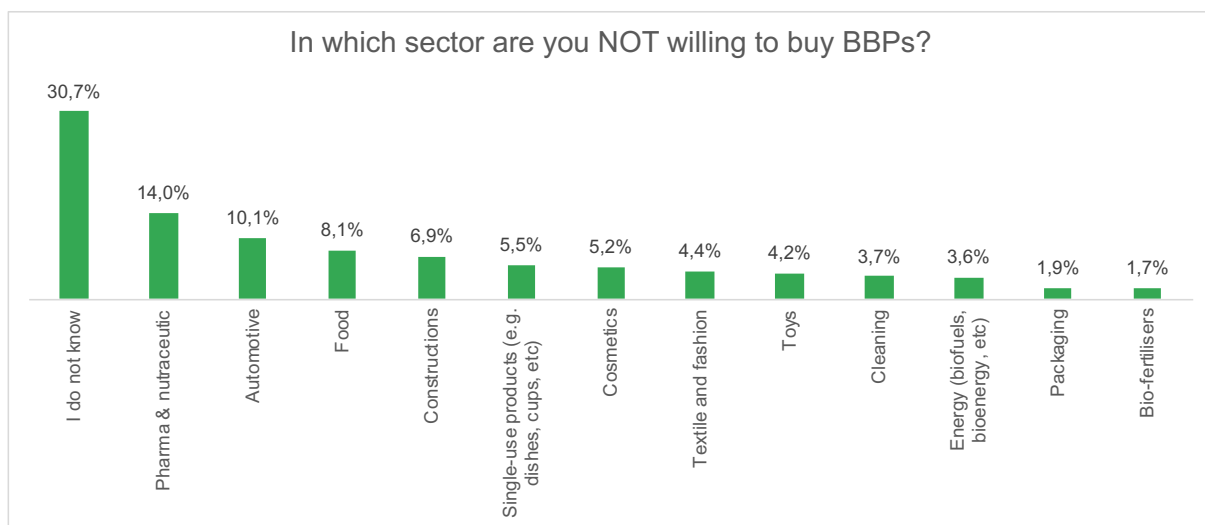
In which sector are you NOT willing to buy BBPs? (you can choose up to 3 options)

In which sector are you NOT willing to buy BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
Pharma & nutraceutic	42	20	6	16	29	18	69	19	3	222
Cosmetics	19	9	2	12	14	5	16	2	4	83
Packaging	5	2	1	1	5	6	4	3	3	30
Automotive	27	8	12	10	24	25	26	14	14	160
Toys	11	3	6	5	9	8	11	6	8	67
Single-use products (e.g. dishes, cups, etc)	19	7	2	4	12	5	10	17	12	88
Textile and fashion	10	7	3	7	6	8	20	8	1	70
Constructions	24	9	8	7	16	12	18	11	4	109
Cleaning	12	3	3	8	6	3	8	7	8	58
Energy (biofuels, bioenergy, etc)	12	8	5	2	9	5	4	7	5	57
Bio-fertilisers	5	1	3	3	3	1	7	2	2	27
Food	24	13	2	19	15	5	37	8	5	128
I do not know	103	37	25	28	77	48	111	46	13	488
										1587

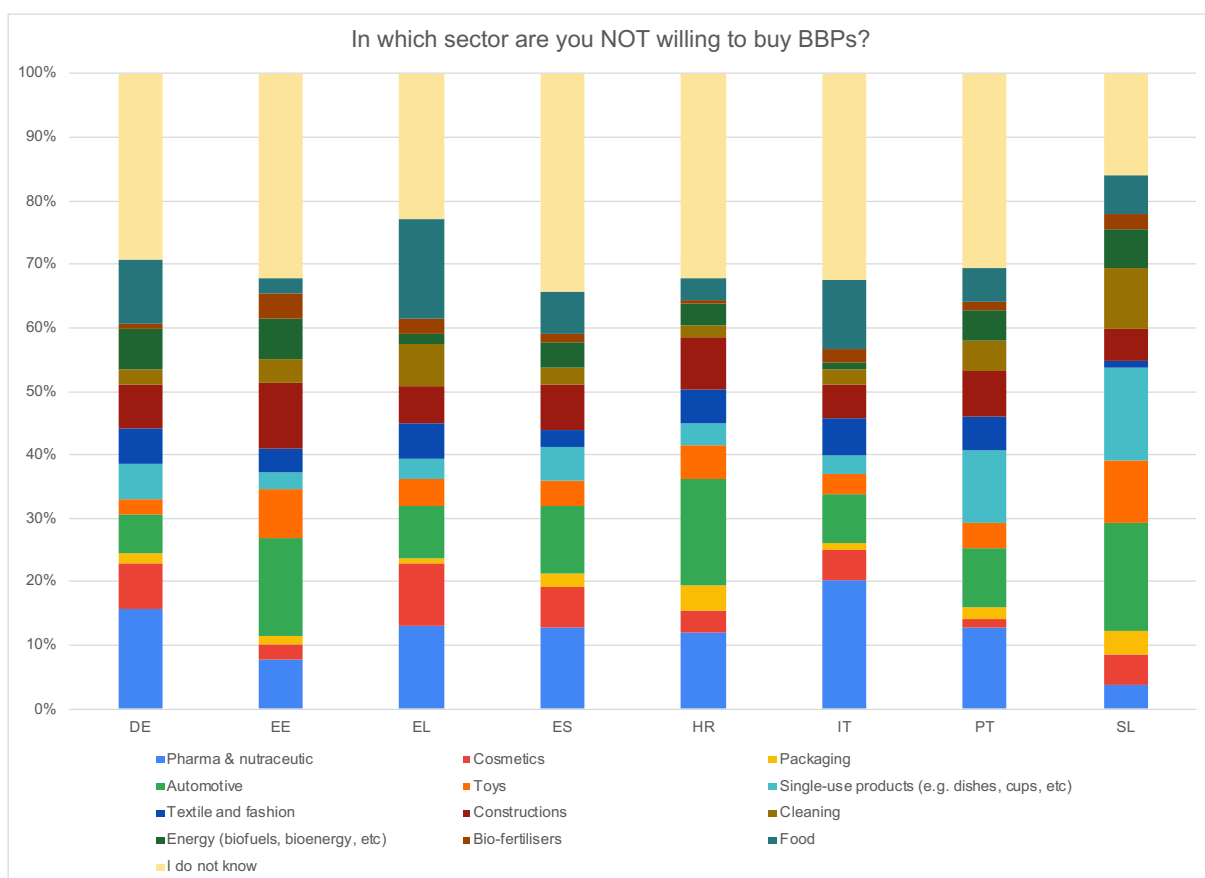
Annex 122 - Number of replies to the question "In which sector are you NOT willing to buy BBPs?"



Annex 123 - Number of replies to the question "In which sector are you NOT willing to buy BBPs?"



Annex 124 - % of sectors in which respondents would NOT buy BBPs



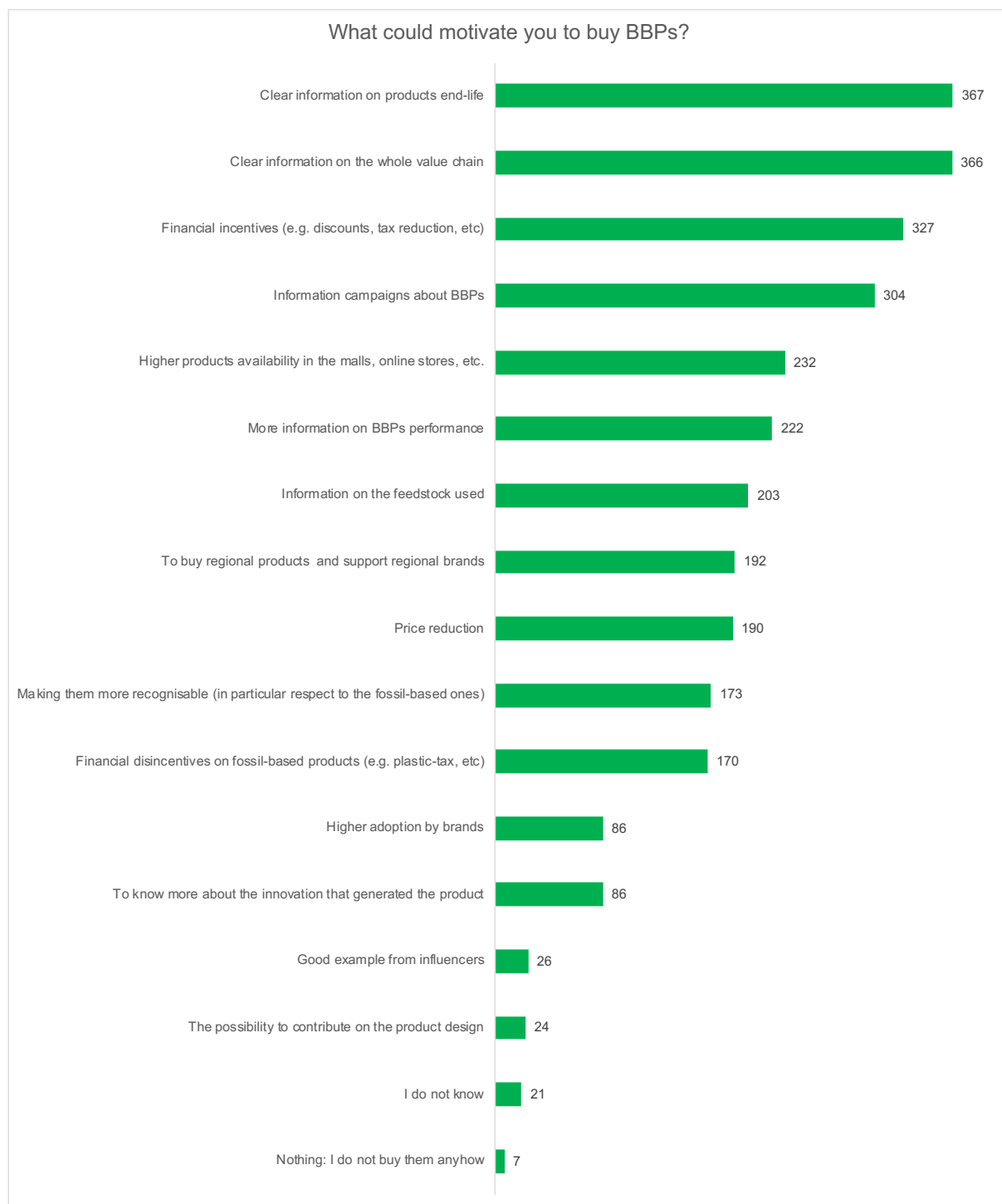
Annex 125 - % of sectors in which respondents in each language version of the survey would NOT buy BBPs

6.2.14. Question 13 – Motivation for buying BBPs

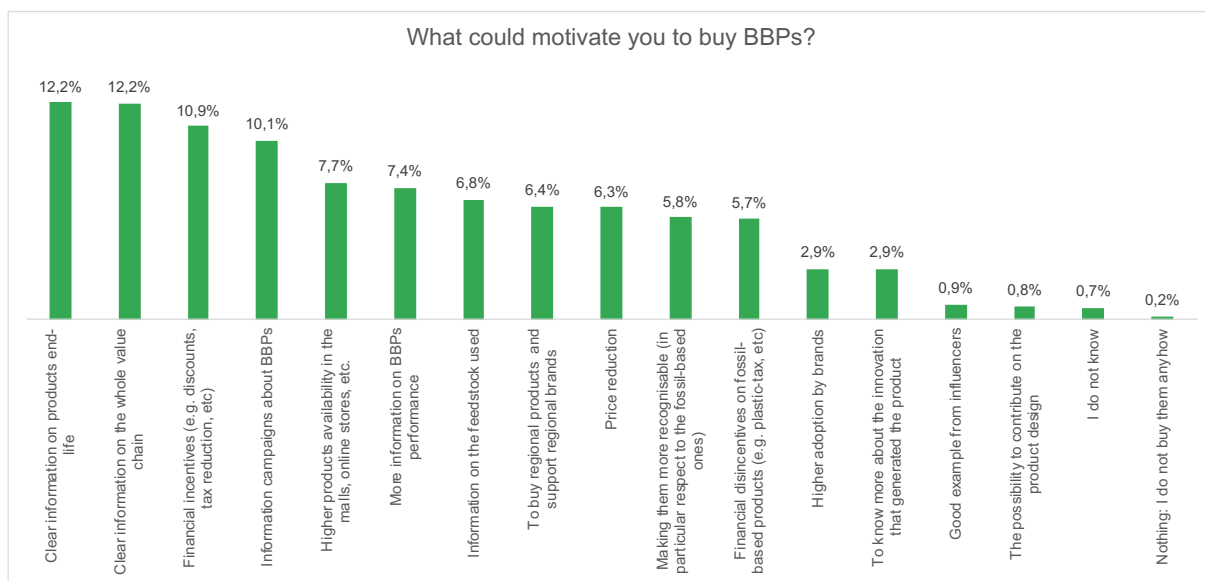
What could motivate you to buy BBPs? (you can choose up to 3 options)

What could motivate you to buy BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
Information campaigns about BBPs	59	20	13	7	56	29	78	31	11	304
Clear information on products end-life	95	21	17	26	60	29	86	22	11	367
Financial incentives (e.g. discounts, tax reduction, etc)	57	18	12	20	48	41	75	39	17	327
Financial disincentives on fossil-based products (e.g. plastic-tax, etc)	41	13	11	12	27	15	25	18	8	170
More information on BBPs performance	40	8	11	25	39	24	47	19	9	222
Clear information on the whole value chain	78	32	18	25	55	30	84	29	15	366
Information on the feedstock used	22	18	6	16	48	16	53	11	13	203
Good example from influencers	8	2	0	1	1	3	5	2	4	26
Higher adoption by brands	23	3	8	6	13	6	9	15	3	86
The possibility to contribute on the product design	2	2	1	1	0	5	9	2	2	24
Price reduction	40	15	9	20	0	19	43	37	7	190
Making them more recognisable (in particular respect to the fossil-based ones)	56	15	10	5	0	12	58	12	5	173
Higher products availability in the malls, online stores, etc.	47	9	16	12	52	18	50	20	8	232
To know more about the innovation that generated the product	12	4	2	6	17	7	25	8	5	86
To buy regional products and support regional brands	49	23	4	5	38	19	25	22	7	192
I do not know	4	2	1	1	2	4	5	1	1	21
Nothing: I do not buy them anyhow	3	0	1	0	0	0	1	1	1	7
										2996

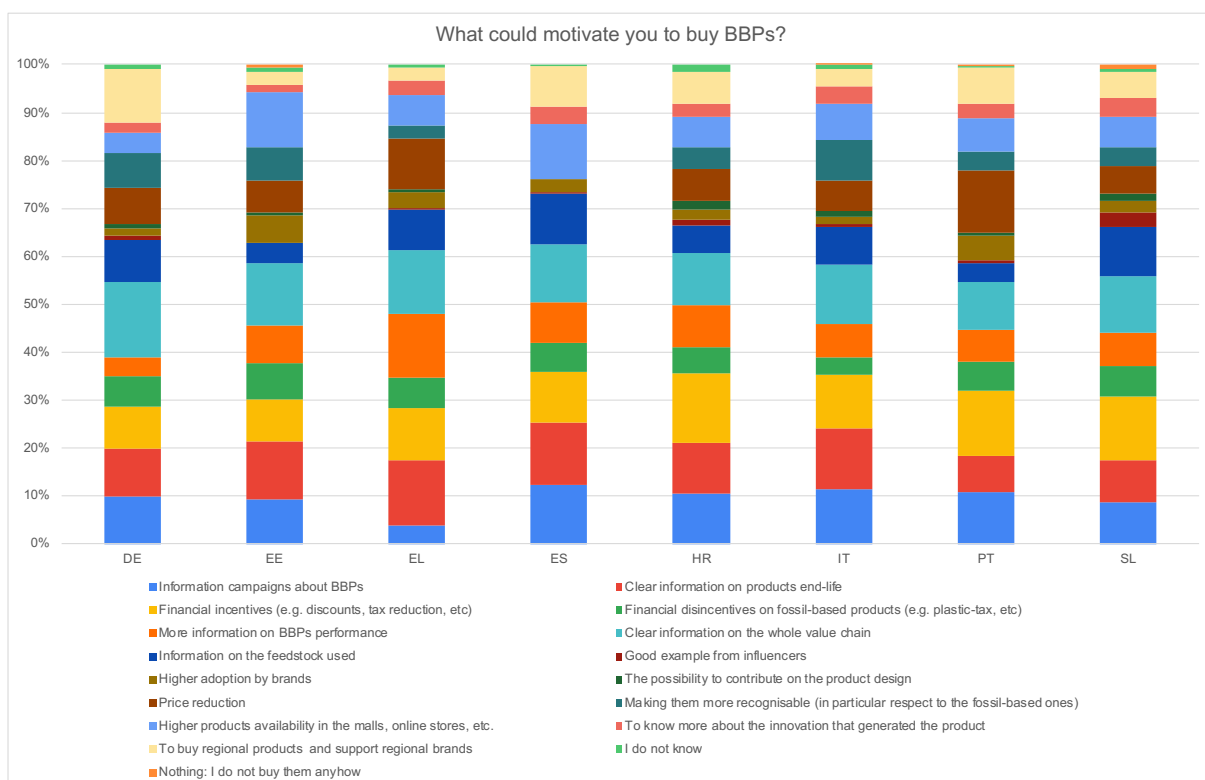
Annex 126 - Number of replies to the question "What could motivate you to buy BBPs?"



Annex 127 - Number of replies to the question "What could motivate you to buy BBPs?"



Annex 128 - % of motivations that could incentives respondents to buy BBPs



Annex 129 - % of motivations that could incentives respondents of each language version of the survey to buy BBPs

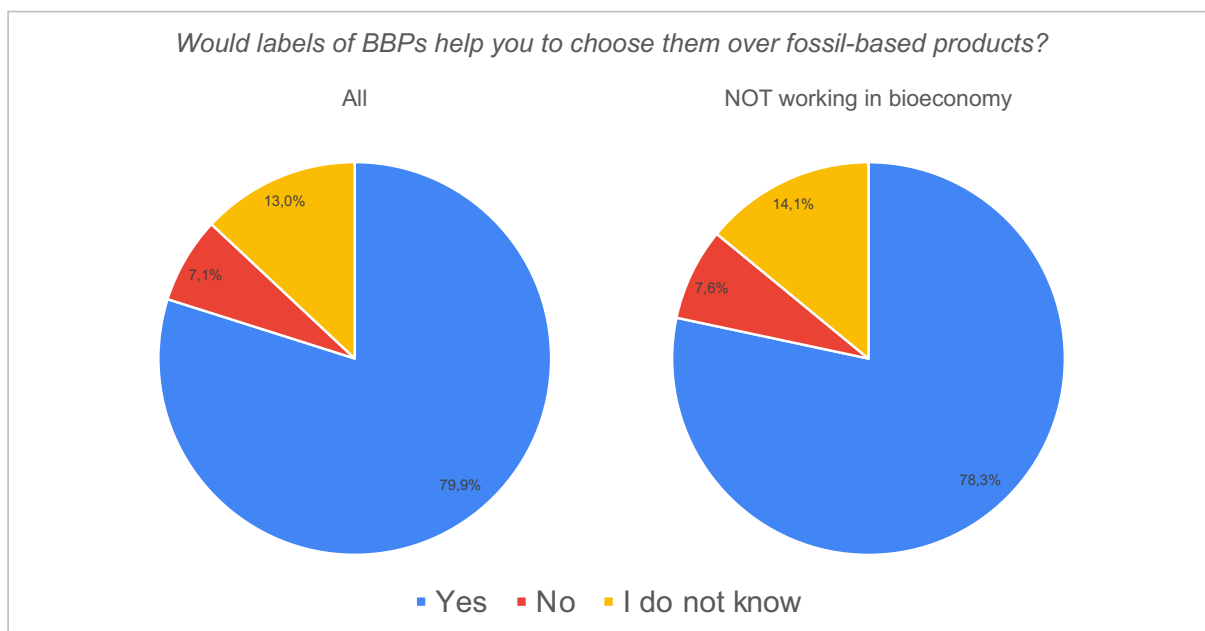
6.2.15. Question 14 – Labels

Would labels of bio-based products help you to choose bio-based products over fossil-based products?

- Yes
- No
- I do not know

Would labels of BBPs help you to choose them over fossil-based products?	Working in bioeconomy	NOT working in bioeconomy	Total
Yes	141	669	810
No	7	65	72
I do not know	12	120	132

Annex 130 - Number of replies to the question "Would labels of bio-based products help you to choose BBPs over fossil-based products?"



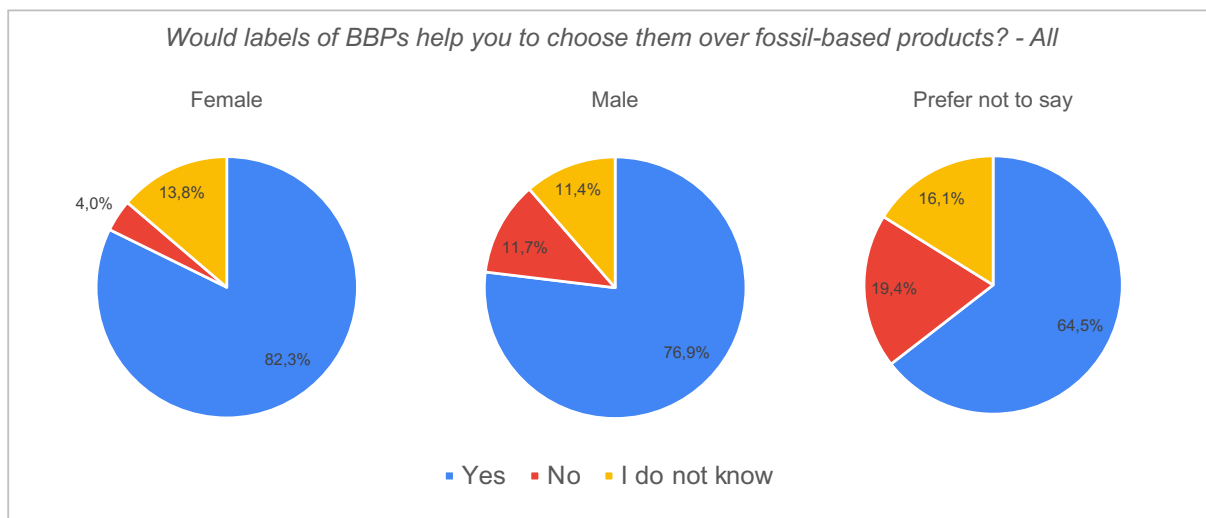
Annex 131 - Influence of labels on respondents in choosing BBPs – All vs. NOT working in the bioeconomy sector

Country	Yes	No	I do not know	Total
Belgium	84,6%	0,0%	15,4%	13
Croatia	84,9%	4,3%	10,8%	93
Estonia	84,3%	3,9%	11,8%	51
France	76,9%	7,7%	15,4%	13
Germany	78,4%	16,2%	5,4%	74
Greece	77,8%	1,4%	20,8%	72
Hungary	93,8%	6,3%	0,0%	16
Italy	85,7%	5,7%	8,7%	230
Portugal	60,0%	14,3%	25,7%	105
Slovakia	61,9%	14,3%	23,8%	42
Spain	80,3%	6,4%	13,4%	157
The Netherlands	84,6%	3,8%	11,5%	78
United Kingdom	85,7%	9,5%	4,8%	21
EU	79,6%	7,3%	13,1%	986
Third countries	89,3%	0,0%	10,7%	28
TOTAL	79,9%	7,1%	13,0%	993

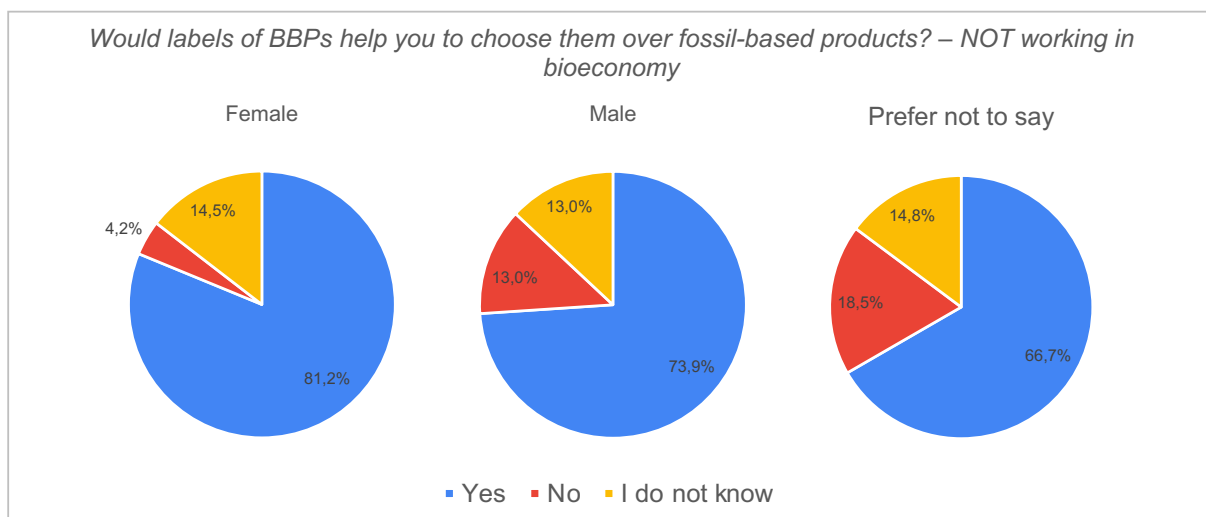
Annex 132 - Influence of labels on respondents in choosing BBPs per country (all)

Country	Yes	No	I do not know	Total (All replies)
Belgium	100,0%	0,0%	0,0%	4 (13)
Croatia	84,1%	4,5%	11,4%	88 (93)
Estonia	83,7%	4,1%	12,2%	49 (51)
France	80,0%	0,0%	20,0%	5 (13)
Germany	77,0%	18,0%	4,9%	61 (74)
Greece	76,1%	1,5%	22,4%	67 (72)
Hungary	100,0%	0,0%	0,0%	10 (16)
Italy	83,5%	6,9%	9,6%	188 (230)
Portugal	58,8%	14,4%	26,8%	97 (105)
Slovakia	61,0%	14,6%	24,4%	41 (42)
Spain	78,1%	6,3%	15,6%	128 (157)
The Netherlands	83,8%	4,1%	12,2%	74 (78)
United Kingdom	88,2%	11,8%	0,0%	17 (21)
EU	78,1%	7,8%	14,1%	837 (986)
Third countries	88,2%	0,0%	11,8%	17 (28)
TOTAL	78,3%	7,6%	14,1%	854 (993)

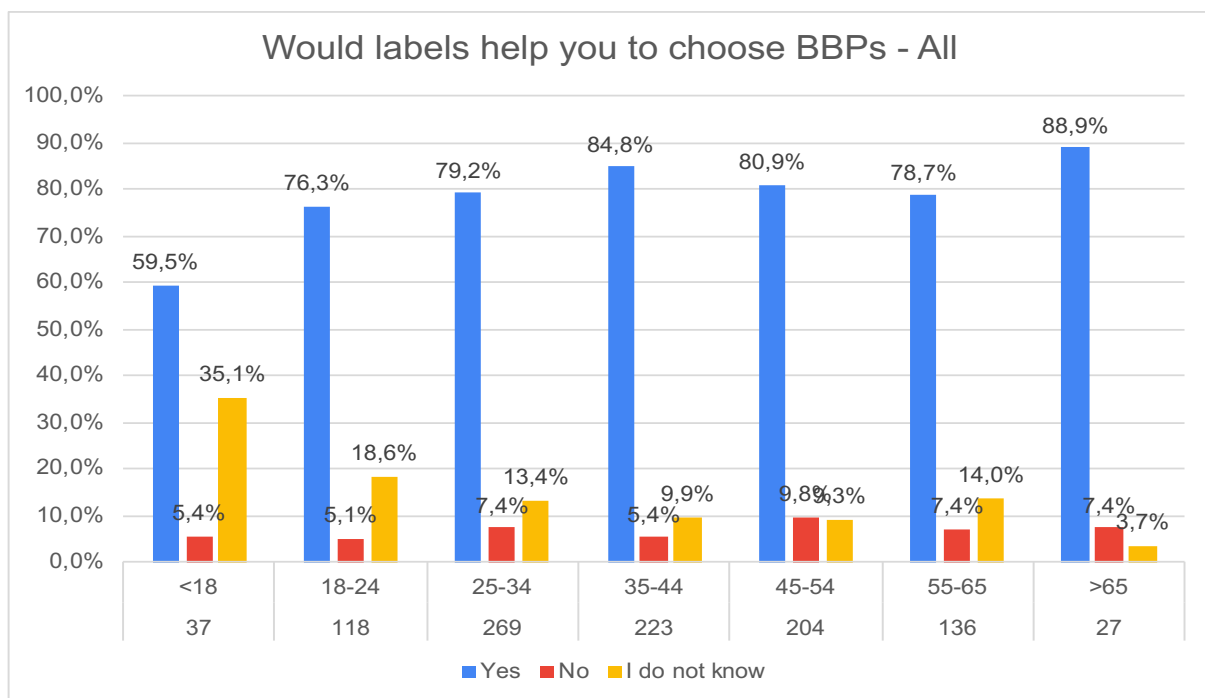
Annex 133 - Influence of labels on respondents in choosing BBPs per country (NOT working in the bioeconomy sector)



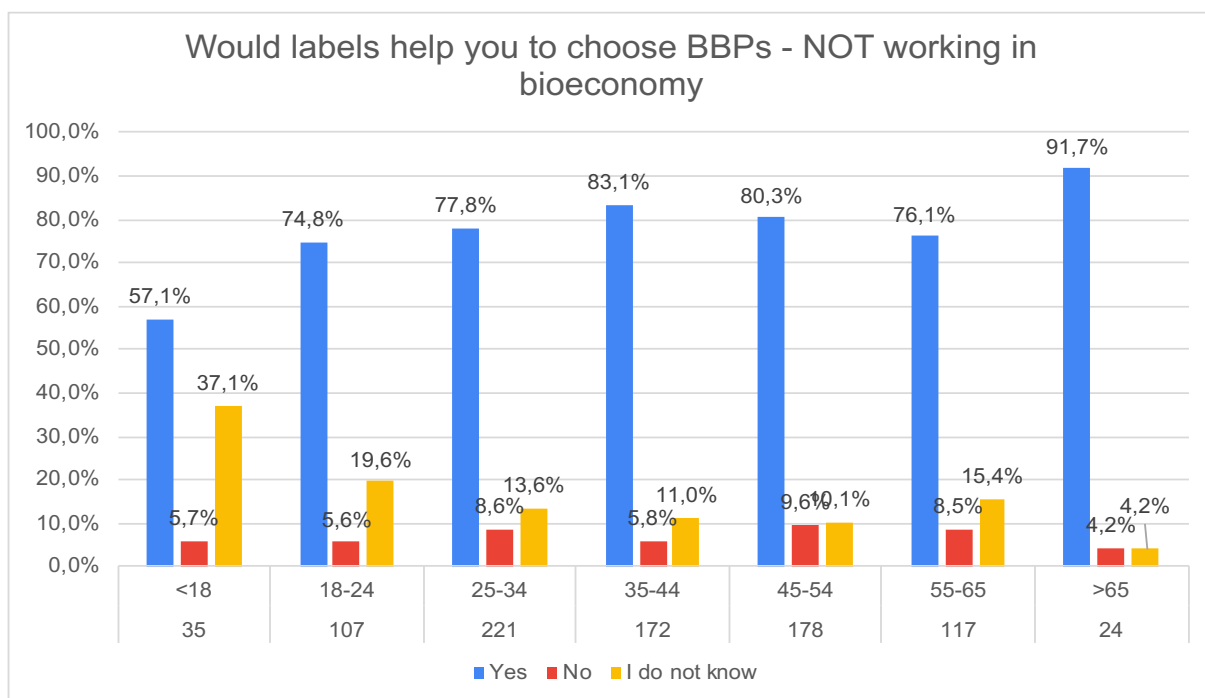
Annex 134 - Influence of labels on respondents in choosing BBPs per gender (all)



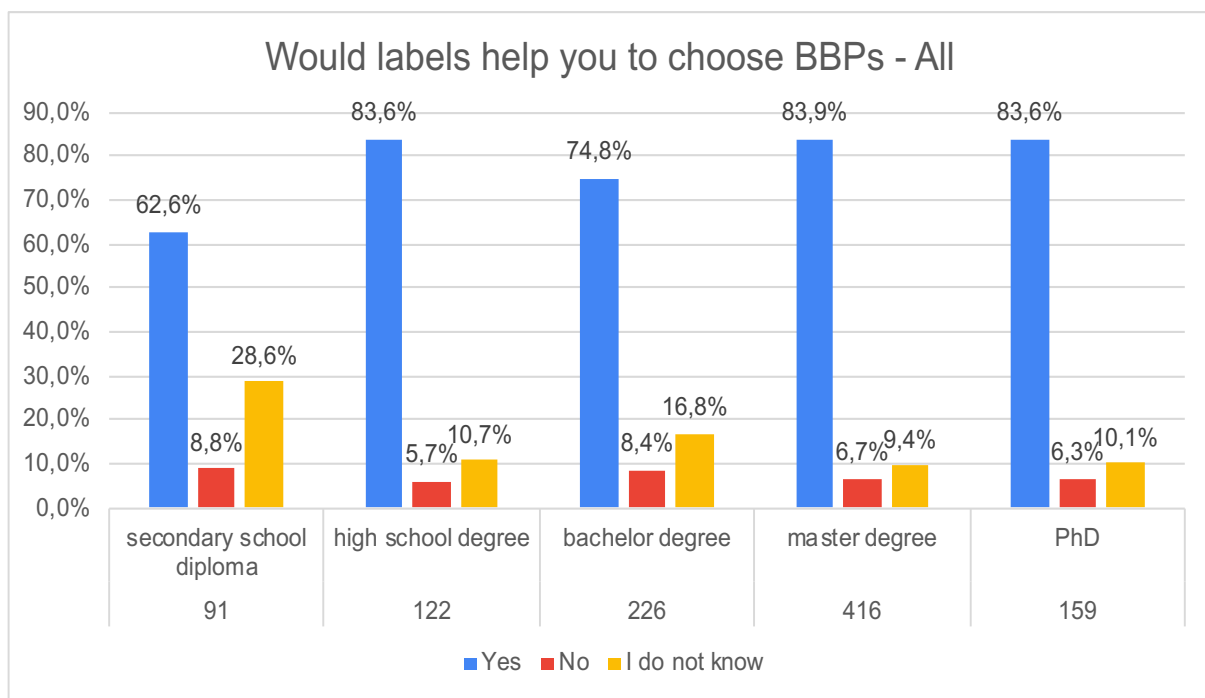
Annex 135 - Influence of labels on respondents in choosing BBPs per gender (NOT working in the bioeconomy sector)



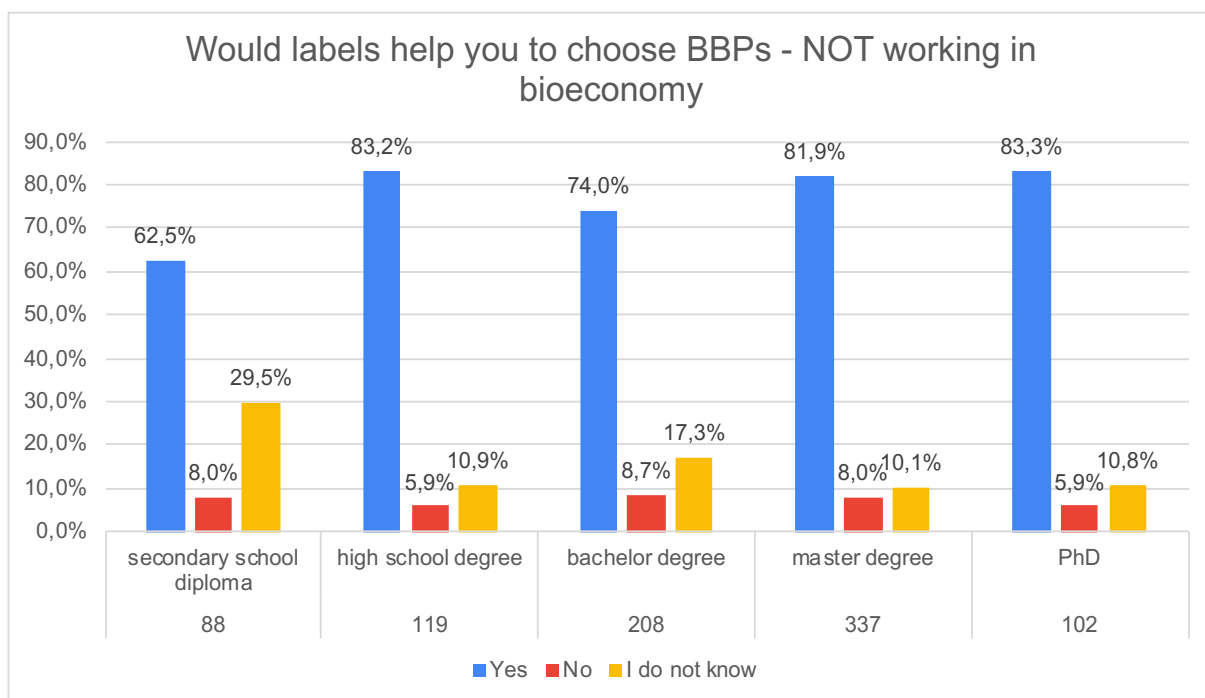
Annex 136 - Influence of labels on respondents in choosing BBPs per age (all), including the number of respondents per each age group



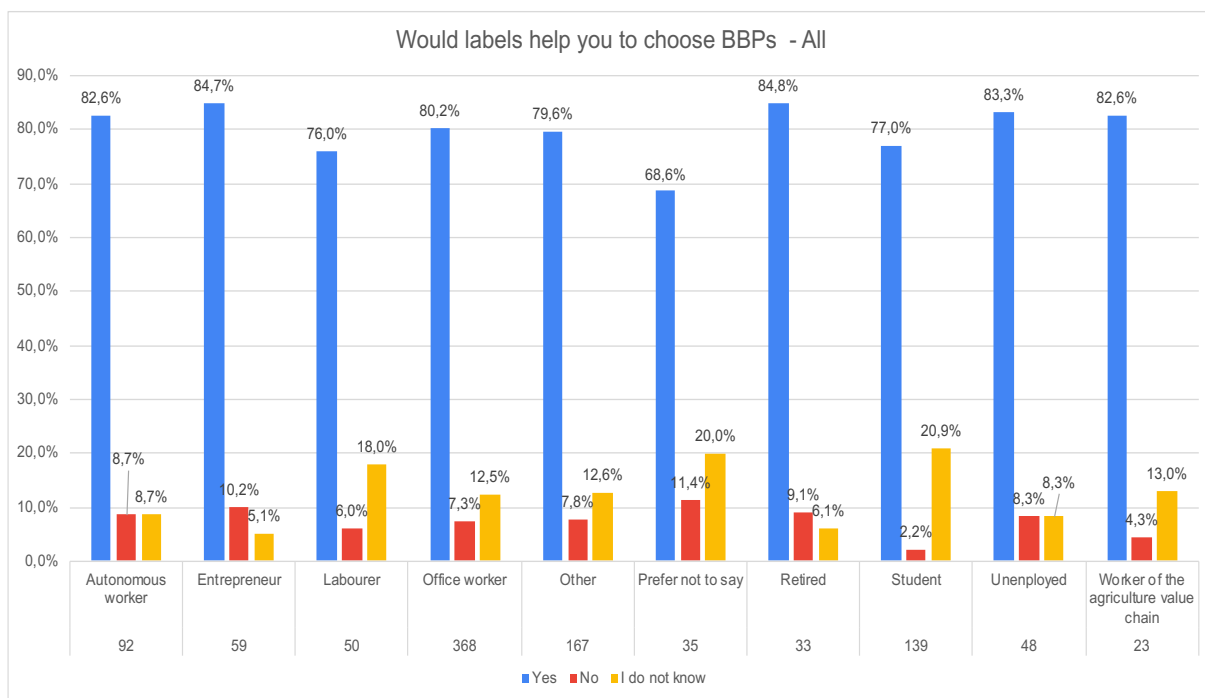
Annex 137 - Influence of labels on respondents in choosing BBPs per age (NOT working in the bioeconomy sector), including the number of respondents per each age group



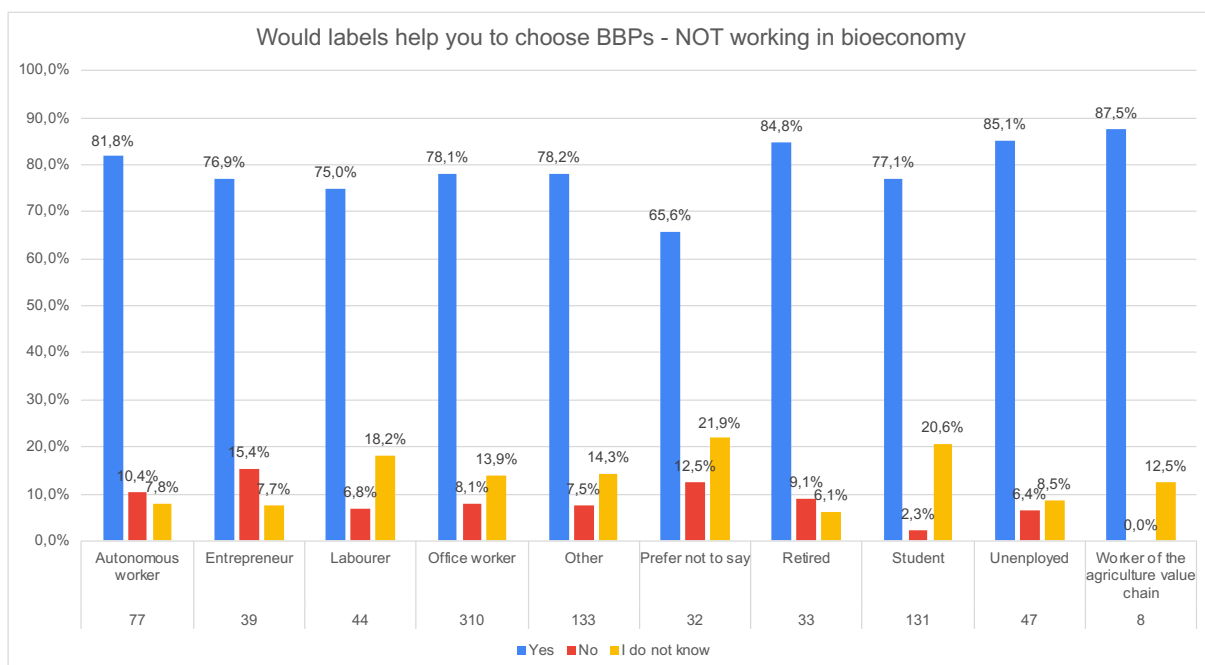
Annex 138 - Influence of labels on respondents in choosing BBPs per education (all), including the number of respondents per each education group



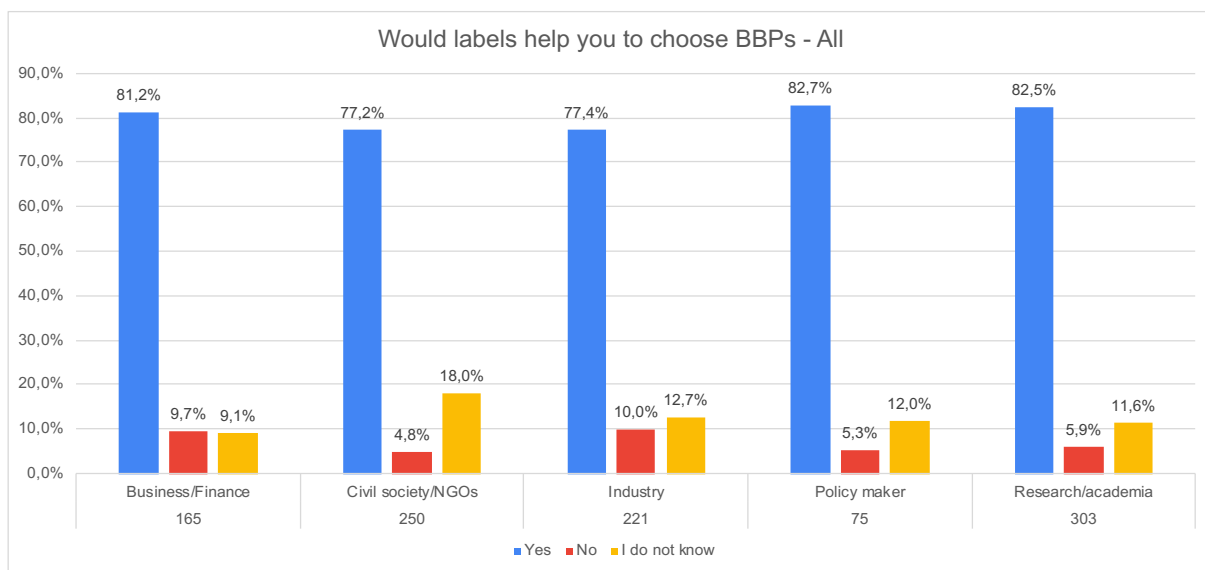
Annex 139 - Influence of labels on respondents in choosing BBPs per education (NOT working in the bioeconomy sector), including the number of respondents per each education group



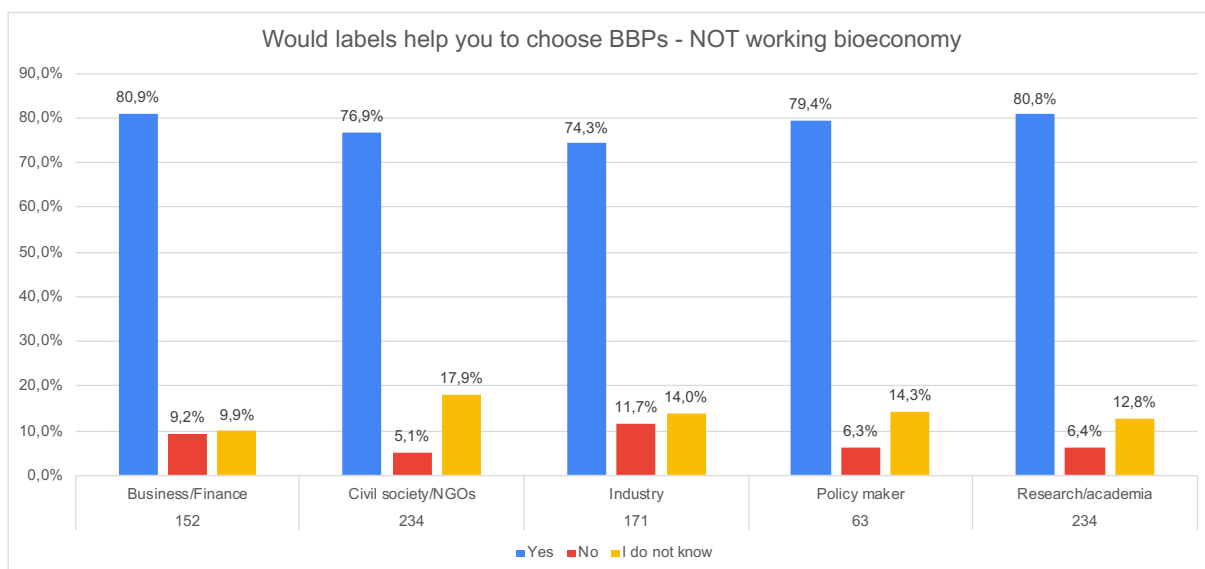
Annex 140 - Influence of labels on respondents in choosing BBPs per work (all), including the number of respondents per each work group



Annex 141 - Influence of labels on respondents in choosing BBPs per work (NOT working in the bioeconomy sector), including the number of respondents per each work group



Annex 142 - Influence of labels on respondents in choosing BBPs per stakeholder category (all), including the number of respondents per each stakeholder category group



Annex 143 - Influence of labels on respondents in choosing BBPs per stakeholder category (NOT working in the bioeconomy sector), including the number of respondents per each stakeholder category group

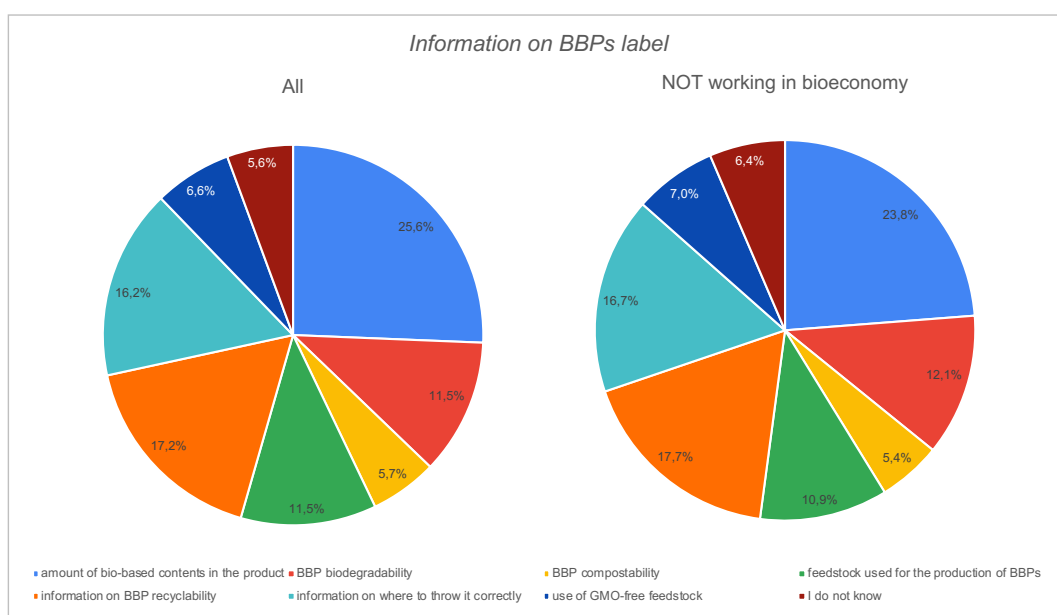
6.2.16. Question 15 – Information from labels

What is the most important information that you would like to see on a BBP label?

- amount of bio-based contents in the product
- information on BBP recyclability
- BBP biodegradability
- BBP compostability
- feedstock used for the production of BBPs
- use of GMO-free feedstock
- information on where to throw it correctly
- I do not know

The most important information that you would like to see on a BBP label	Working in bioeconomy	NOT working in bioeconomy	Total
amount of bio-based contents in the product	57	203	260
BBP biodegradability	14	103	117
BBP compostability	12	46	58
feedstock used for the production of BBPs	24	93	117
information on BBP recyclability	23	151	174
information on where to throw it correctly	21	143	164
use of GMO-free feedstock	7	60	67
I do not know	2	55	57

Annex 144 - Number of replies to the question "What is the most important information that you would like to see on a BBP label?"



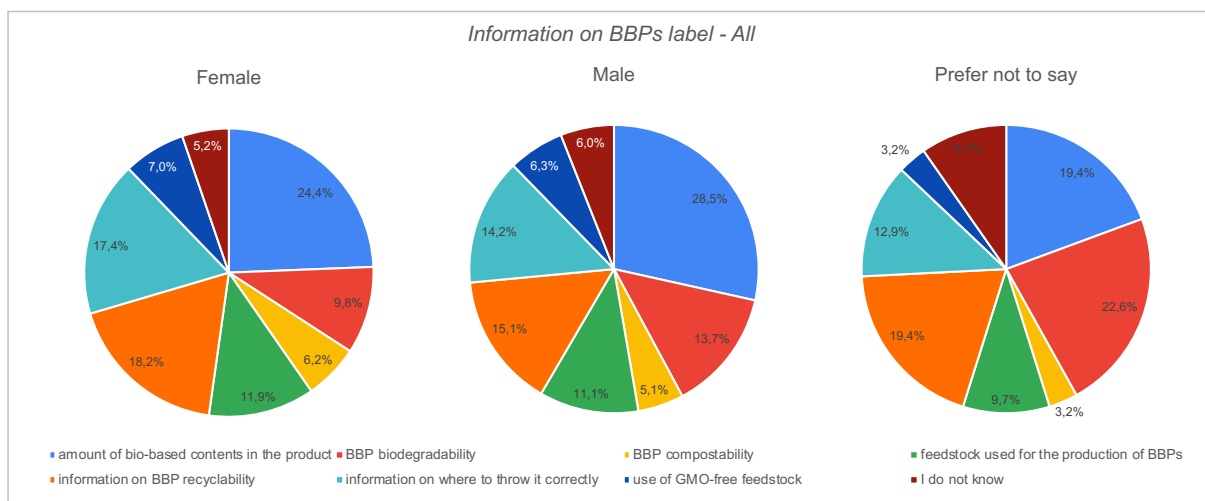
Annex 145 - Respondents' request of information on BBPs on labels - All vs. NOT working in the bioeconomy sector

Country	amount of bio-based contents in the product	BBP biodegradability	BBP compostability	feedstock used for the production of BBPs	information on BBP recyclability	information on where to throw it correctly	use of GMO-free feedstock	I do not know	Total
Belgium	38,5%	0,0%	7,7%	30,8%	7,7%	15,4%	0,0%	0,0%	13
Croatia	25,8%	8,6%	10,8%	10,8%	7,5%	18,3%	8,6%	9,7%	93
Estonia	19,6%	3,9%	7,8%	19,6%	17,6%	19,6%	3,9%	7,8%	51
France	23,1%	23,1%	0,0%	7,7%	7,7%	30,8%	7,7%	0,0%	13
Germany	24,3%	6,8%	4,1%	9,5%	16,2%	21,6%	5,4%	12,2%	74
Greece	11,1%	6,9%	2,8%	13,9%	29,2%	18,1%	15,3%	2,8%	72
Hungary	43,8%	12,5%	18,8%	6,3%	6,3%	6,3%	6,3%	0,0%	16
Italy	22,2%	9,6%	6,1%	11,7%	25,7%	15,7%	6,1%	3,0%	230
Portugal	33,3%	14,3%	1,9%	9,5%	8,6%	9,5%	13,3%	9,5%	105
Slovakia	23,8%	19,0%	4,8%	9,5%	23,8%	7,1%	4,8%	7,1%	42
Spain	28,7%	19,1%	4,5%	11,5%	12,7%	14,0%	5,1%	4,5%	157
Netherlands	28,2%	7,7%	9,0%	5,1%	19,2%	25,6%	1,3%	3,8%	78
UK	19,0%	19,0%	4,8%	23,8%	4,8%	14,3%	4,8%	9,5%	21
EU	25,6%	11,2%	5,7%	11,6%	17,3%	16,2%	6,8%	5,7%	986
Third Countries	28,6%	25,0%	7,1%	10,7%	10,7%	14,3%	0,0%	3,6%	28
TOTAL	25,6%	11,5%	5,7%	11,5%	17,2%	16,2%	6,6%	5,6%	993

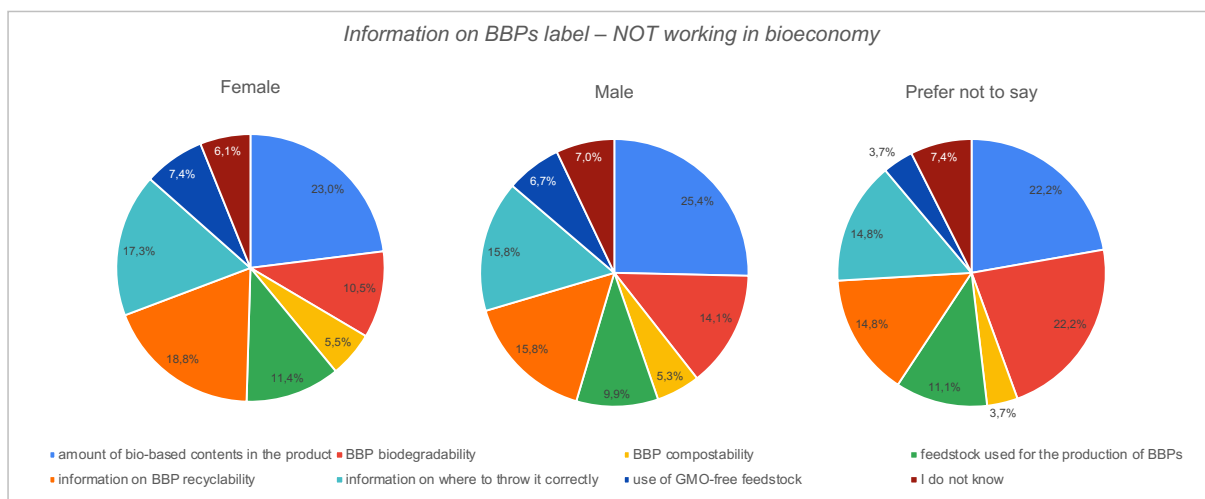
Annex 146 - Respondents' request of information on BBPs on labels per country (all)

Country	amount of bio-based contents in the product	BBP biodegradability	BBP compostability	feedstock used for the production of BBPs	information on BBP recyclability	information on where to throw it correctly	use of GMO-free feedstock	I do not know	#Replies per Country
Belgium	25,0%	0,0%	25,0%	0,0%	25,0%	25,0%	0,0%	0,0%	4 (13)
Croatia	26,1%	8,0%	9,1%	10,2%	8,0%	19,3%	9,1%	10,2%	88 (93)
Estonia	20,4%	4,1%	6,1%	20,4%	18,4%	20,4%	2,0%	8,2%	49 (51)
France	0,0%	60,0%	0,0%	20,0%	0,0%	0,0%	20,0%	0,0%	5 (13)
Germany	24,6%	6,6%	4,9%	8,2%	13,1%	24,6%	4,9%	13,1%	61 (74)
Greece	11,9%	6,0%	3,0%	13,4%	26,9%	19,4%	16,4%	3,0%	67 (72)
Hungary	50,0%	20,0%	0,0%	10,0%	10,0%	10,0%	0,0%	0,0%	10 (16)
Italy	19,7%	10,6%	5,3%	12,2%	27,1%	14,4%	6,9%	3,7%	188 (230)
Portugal	34,0%	13,4%	2,1%	10,3%	8,2%	10,3%	11,3%	10,3%	97 (105)
Slovakia	24,4%	17,1%	4,9%	9,8%	24,4%	7,3%	4,9%	7,3%	41 (42)
Spain	25,0%	20,3%	4,7%	10,9%	12,5%	15,6%	6,3%	4,7%	128 (157)
Netherlands	25,7%	8,1%	9,5%	5,4%	20,3%	25,7%	1,4%	4,1%	74 (78)
UK	17,6%	23,5%	5,9%	11,8%	5,9%	17,6%	5,9%	11,8%	17 (21)
EU	23,8%	11,7%	5,4%	11,0%	17,7%	16,8%	7,2%	6,5%	837 (986)
Third Countries	23,5%	29,4%	5,9%	5,9%	17,6%	11,8%	0,0%	5,9%	17 (28)
TOTAL	23,8%	12,1%	5,4%	10,9%	17,7%	16,7%	7,0%	6,4%	854 (993)

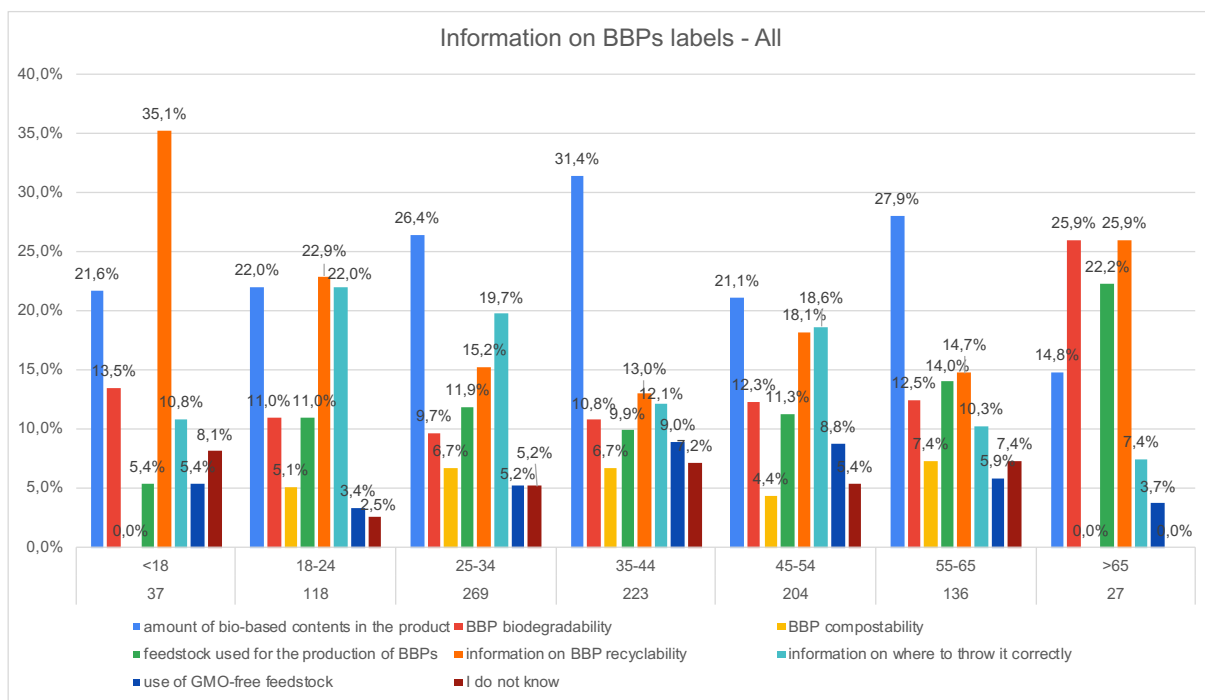
Annex 147 - Respondents' request of information on BBPs on labels per country (NOT working in the bioeconomy sector)



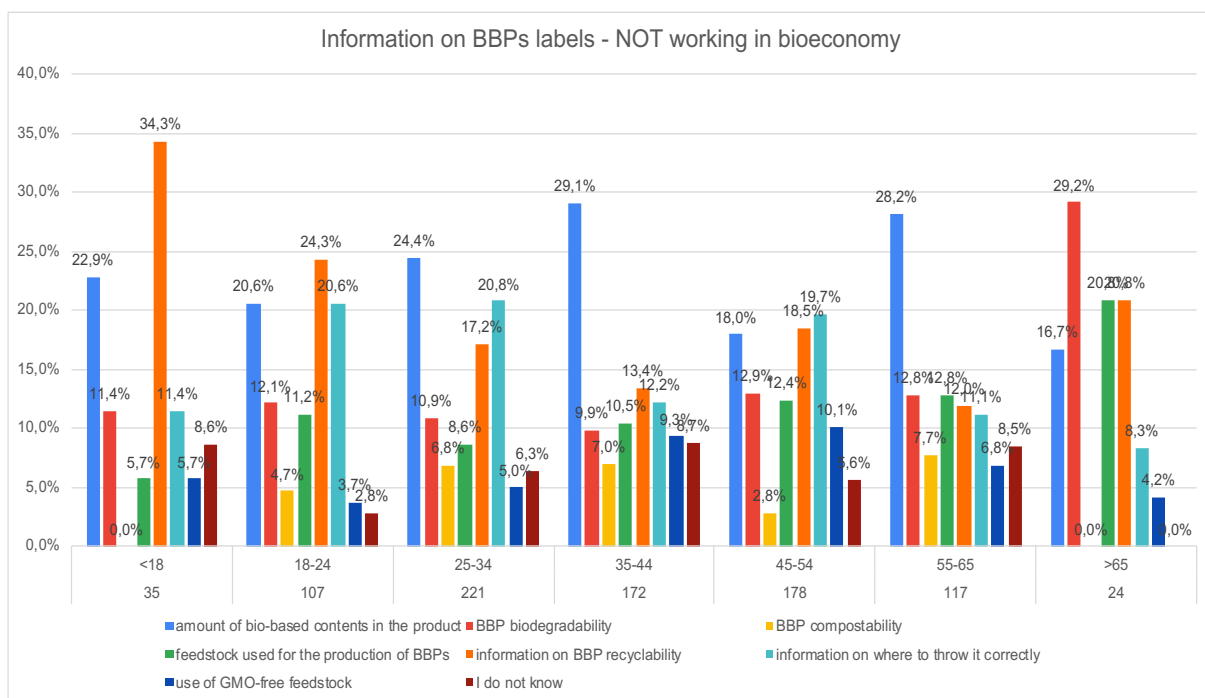
Annex 148 - Respondents' request of information on BBPs on labels per gender (all)



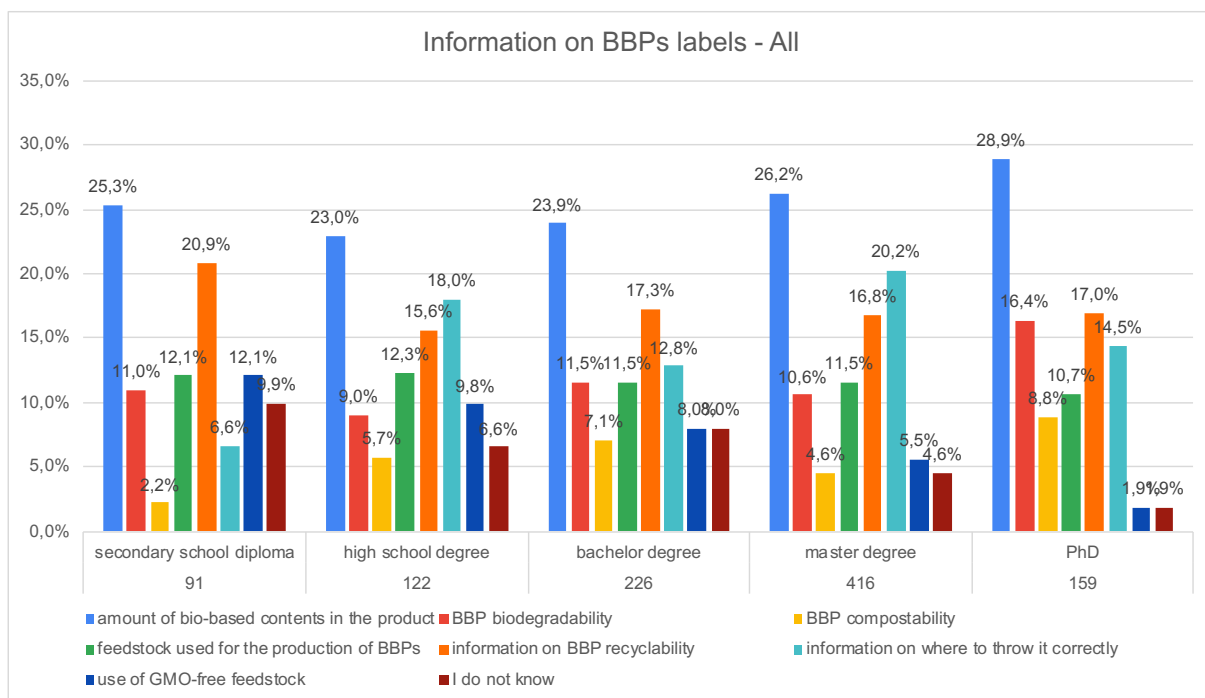
Annex 149 - Respondents' request of information on BBPs on labels per gender (NOT working in the bioeconomy sector)



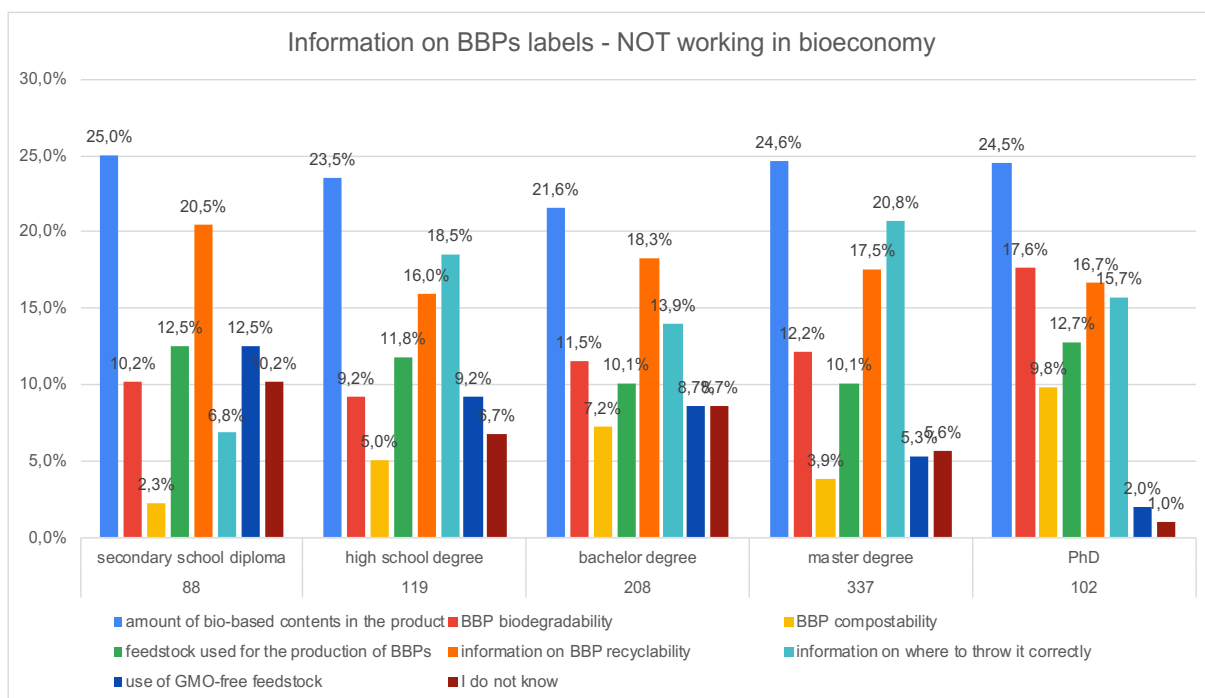
Annex 150 - Respondents' request of information on BBPs on labels per age (all), including the number of respondents per each age group



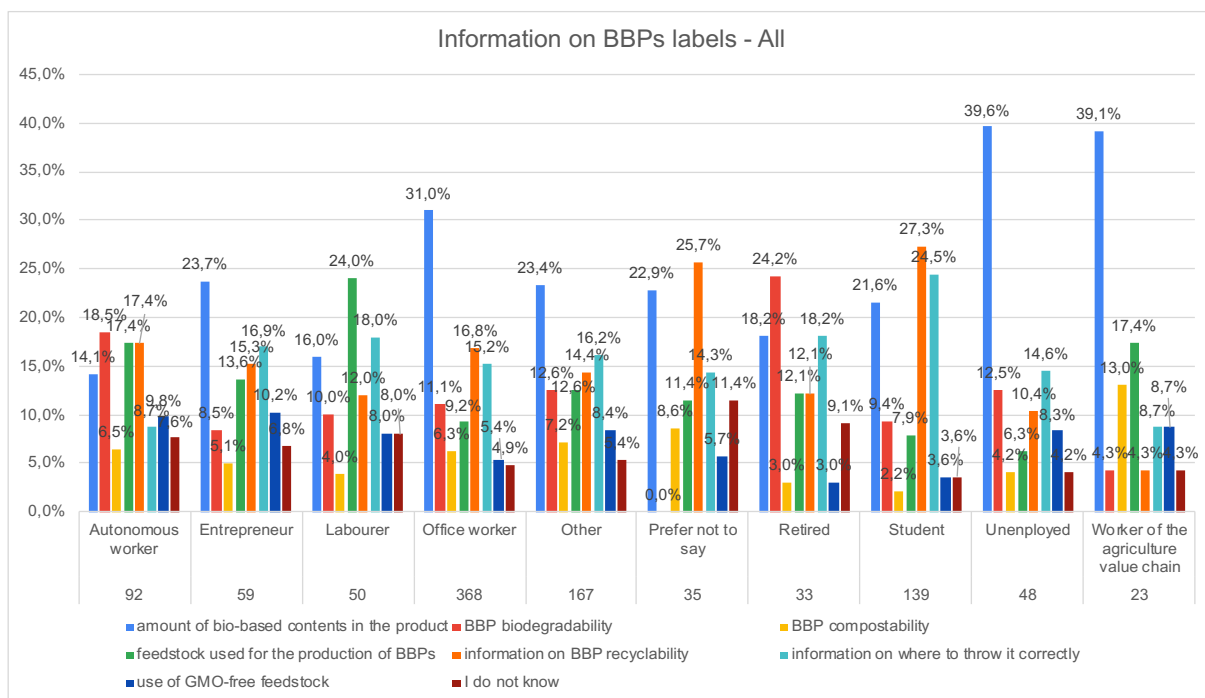
Annex 151 - Respondents' request of information on BBPs on labels per age (NOT working in the bioeconomy sector), including the number of respondents per each age group



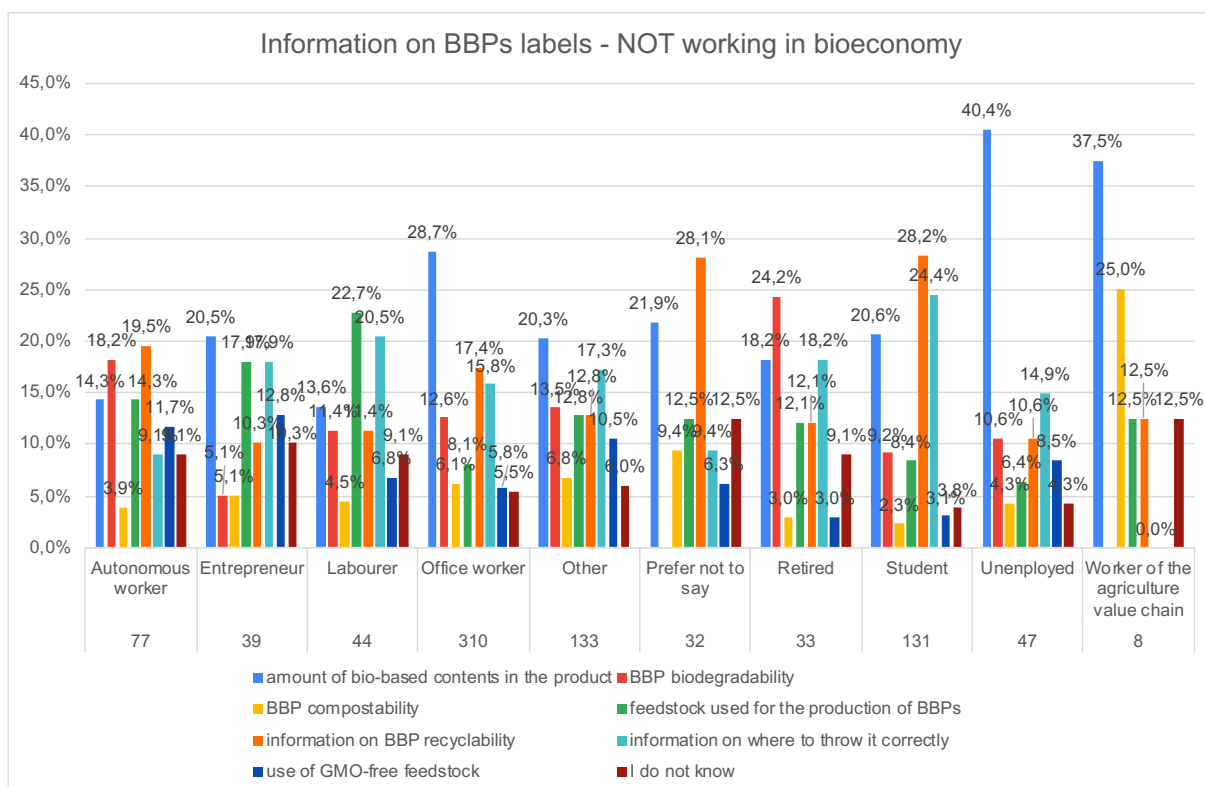
Annex 152 - Respondents' request of information on BBPs on labels per education (all), including the number of respondents per each education group



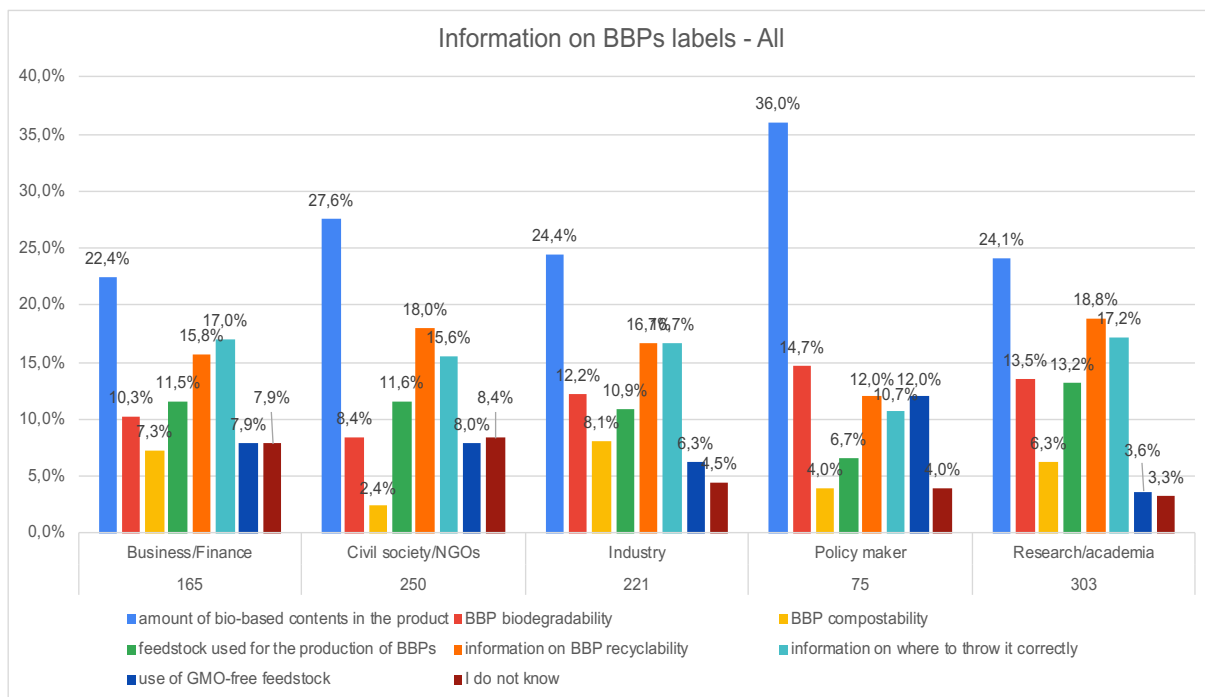
Annex 153 - Respondents' request of information on BBPs on labels per education (NOT working in the bioeconomy sector), including the number of respondents per each education group



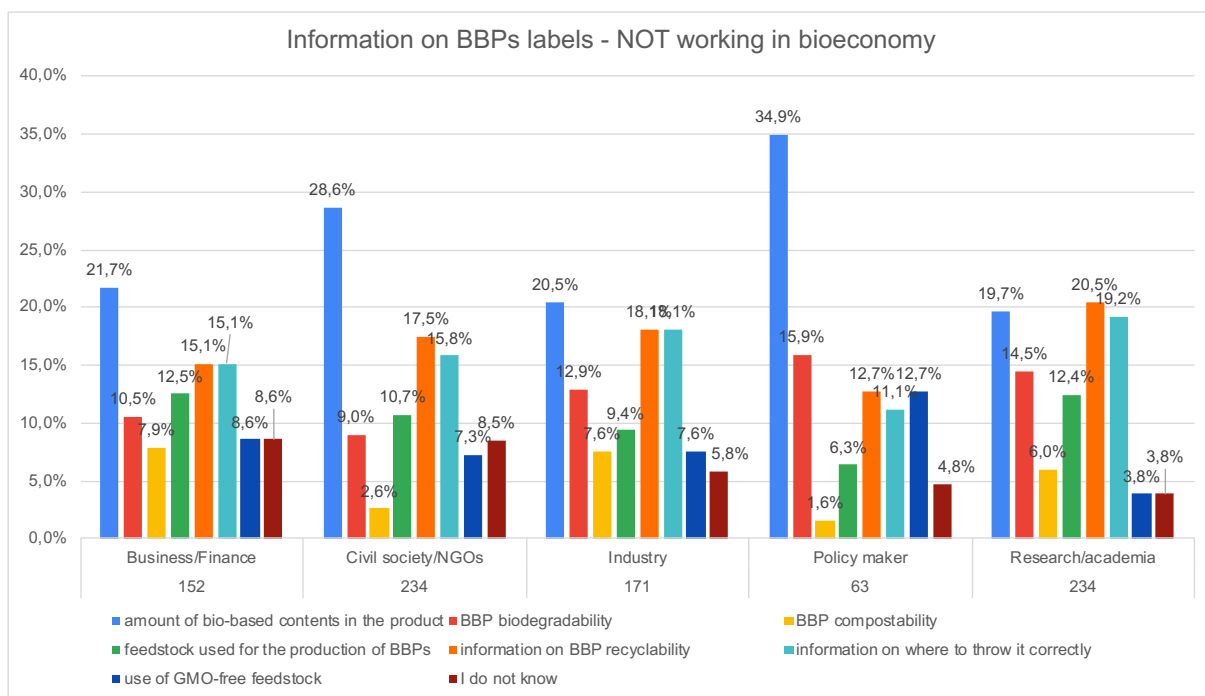
Annex 154 - Respondents' request of information on BBPs on labels per work (all), including the number of respondents per each work group



Annex 155 - Respondents' request of information on BBPs on labels per work (NOT working in the bioeconomy sector), including the number of respondents per each work group



Annex 156 - Respondents' request of information on BBPs on labels per stakeholder category (all), including the number of respondents per each stakeholder category group



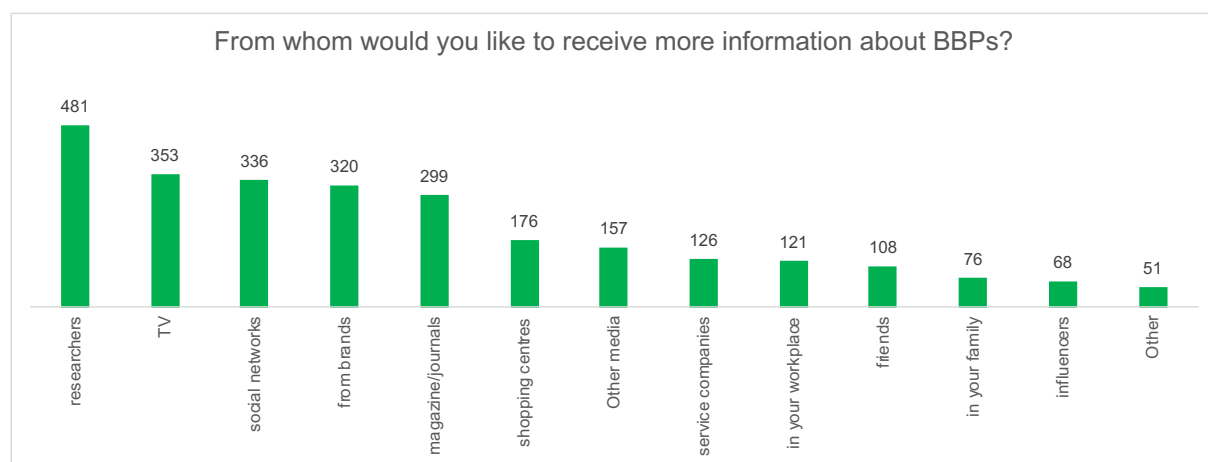
Annex 157 - Respondents' request of information on BBPs on labels per stakeholder category (NOT working in the bioeconomy sector), including the number of respondents per each stakeholder category group

6.2.17. Question 16 – Receiving information on bioeconomy

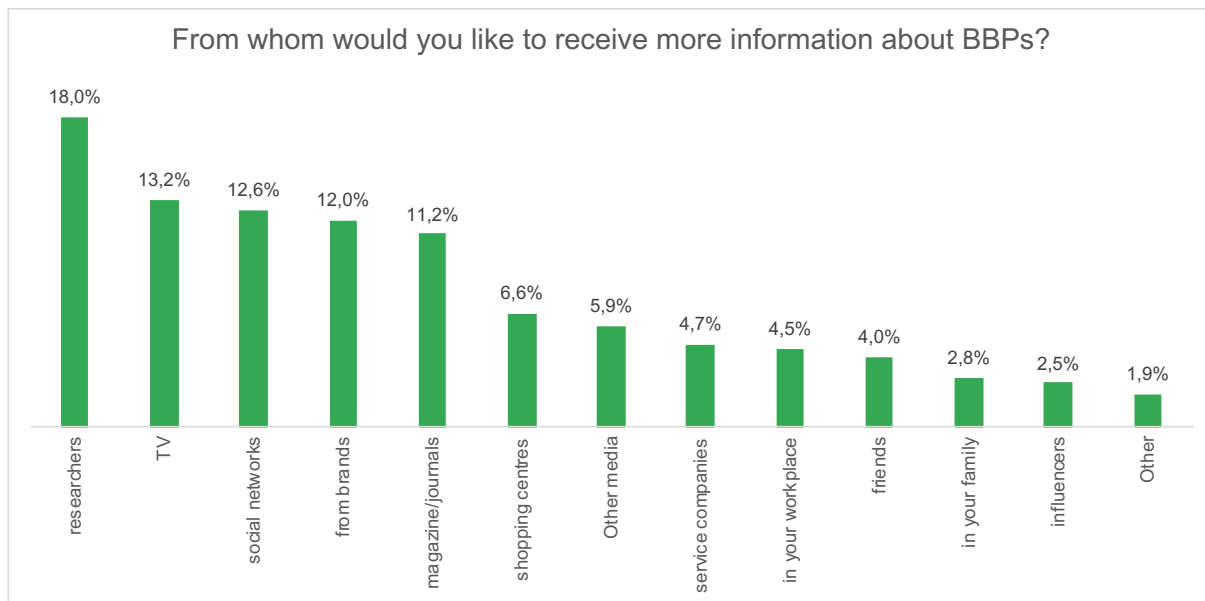
From whom would you like to receive more information about BBPs? (Up to 3 answers)

From whom would you like to receive more information about BBPs?	EN	DE	EE	EL	ES	HR	IT	PT	SL	TOT
In your family	13	4	6	5	10	3	12	8	15	76
Friends	25	5	6	6	13	8	12	11	22	108
In your workplace	29	7	5	7	15	6	23	11	18	121
Researchers	113	40	30	30	101	40	82	27	18	481
Tv	58	21	10	25	54	31	100	40	14	353
Social networks	74	24	15	30	33	41	75	32	12	336
Influencers	15	5	4	7	5	4	15	9	4	68
From brands	82	13	12	13	40	21	82	51	6	320
Shopping centres	39	17	14	5	25	21	44	7	4	176
Service companies	24	14	3	8	8	12	44	10	3	126
Magazine/journals	69	23	13	18	45	35	58	33	5	299
Other media	23	14	9	15	26	15	31	20	4	157
Other	14	6	1	2	9	5	7	6	1	51
										2672

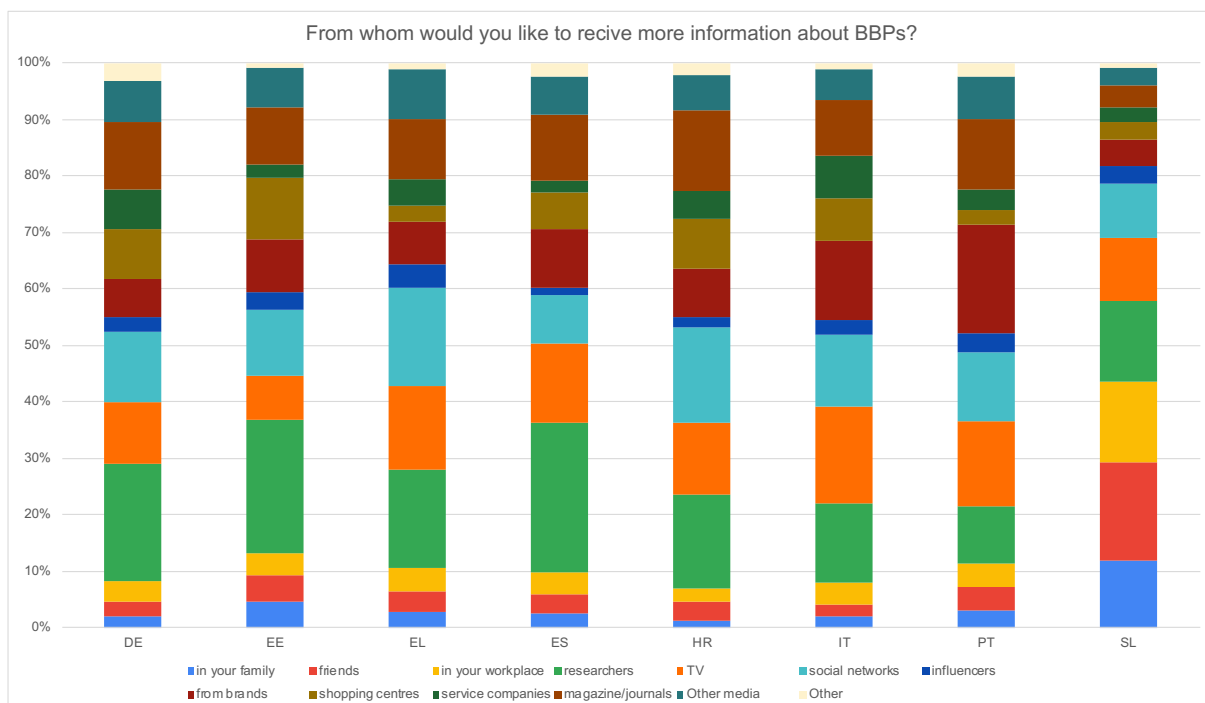
Annex 158 – Number of replies to the question “From whom would you like to receive more information about BBPs?”



Annex 159 - Number of replies to the question “From whom would you like to receive more information about BBPs?”



Annex 160 - % of channels and actors from whom respondents would be informed about BBPs



Annex 161 - % of channels and actors from whom respondents of each language version of the survey would be informed about BBPs

6.3. Survey online form

Biobridges - Assessing the consumers' awareness on bio-based products

BIOBRIDGES project was conceived to tackle the key challenge of improving the marketability of sustainable bio-based products (BBPs) by fostering close cooperation and partnerships among bio-based industries, brand owners and consumers' representatives.

This survey aims to assess the consumers' awareness on bio-based products: data collected through this form will be processed and analysed by Biobridges staff in order to design a set of recommendations, to be promoted among various stakeholders, on how to increase consumers' awareness.

BIOBRIDGES project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 792236.

*Campo obbligatorio

What is "bioeconomy"? *

- ☐ 1 - A model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible.
- ☐ 2 - The production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy
- ☐ 3 - A holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity
- ☐ 4 - The crop, recovery and treatment of natural and biological resources to be used for producing renewable energy

Your awareness of bioeconomy

In the previous question, the right answer was the number 2, presented by the card below (created by the Biovoices project - <https://www.biovoices.eu/>)

Discover more about the European Bioeconomy Strategy, launched in 2012 and updated in 2018 by the European Commission:
https://ec.europa.eu/research/bioeconomy/pdf/ec_bioeconomy_booklet_2018.pdf#view=fit&pagemode=none

In the previous question, answer number 1 is the definition of Circular Economy, as stated by the European Parliament in 2015 (<https://www.europarl.europa.eu/news/en/headlines/economy/20151201ST005603/circular-economy-definition-importance-and-benefits>), and answer number 3 refers to the organic agriculture provided by Food and Agriculture Organization of the United Nations (<http://www.fao.org/organicag/oa-faq/oa-faq1/en/>).

Bioeconomy definition



What is BIOECONOMY?

ONLINE EDUCATION

The bioeconomy is the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy.

[EU Commission | "Innovating for Sustainable Growth - A Bioeconomy for Europe" (2018)]

info@biovoices.eu

BIOVOICES

www.biovoices.eu

From 1 to 5, how much are you aware of the bioeconomy? *

	1	2	3	4	5	
I have never heard about it before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I am completely aware, and I know about existing policies in my country and in Europe

Bio-Based Products (BBPs)

What is a bio-based product? *

- ☐ An organic product certified by an independent organization
- ☐ A bio-degradable product created from recycled resources
- ☐ A product wholly or partly derived from biomass
- ☐ A fully compostable product

Your awareness of bio-based products

In the last few years, a growing number of products made using biomass, residuals, or waste reached the market. In some cases, they become part of our daily life and we do not know that they are bio-based.

For instance, degradable shopping bags for fruit in shopping malls are made from thistle; several cosmetics use tomatoes, in particular, substances contained in its peel; by recycling industrial waste from apples processing it is possible to create a natural 'leather' to be used by the fashion industry; there are construction materials made from hemp; urban organic waste can be used to produce biofertilizers; and much more.

"Bio-based" does not necessarily mean that a product is (bio)degradable and compostable. Some of them are both (e.g. some shopping bags); in many cases, they are not absorbed by the environment, neither can be thrown along with organic wastes. For this reason, before disposing of your product, please, read carefully its label!

Bio-based products are opposite to the fossil-based ones, that are derived from not renewable resources. Whether a bio-based product is more sustainable than its fossil-based counterpart depends however not only on its end-of life options, but also on the sourcing and origin of the raw materials and the efficiency in the production, among others. Thus, the availability of transparent and evidence-based information and labels are of significant importance and could enable consumers to make more informed decisions.

The card below was created by the Biovoices project (<https://www.biovoices.eu/>)

Bio-based products definition

What are BIO-BASED PRODUCTS?

ONLINE EDUCATION

The term bio-based product refers to products wholly or partly derived from biomass, such as plants, trees or animals (the biomass can have undergone physical, chemical or biological treatment).

[www.cen.eu/work/areas/chemical-biobased]

Examples of bio-based products shown: olive oil, soap, a spoon with seeds, a green leaf, and a piece of wood.

info@biovoices.eu **BIOVOICES** www.biovoices.eu

From 1 to 5, how aware are you of the Bio-Based Products (BBPs)? *

1 2 3 4 5

I have never heard about them
before

☐
☐
☐
☐
☐

I am completely aware about
them

Visit the BioArt Gallery to discover new and more bio-based products:

<https://www.biovoices.eu/gallery/>



BBPs purchase habits

When you shop, how easy is to find bio-based products (in shopping malls, online stores, etc)? *

1 2 3 4 5

It is impossible to find them

☐
☐
☐
☐
☐

They are sell everywhere and I can easily find them

In your opinion, BBPs could have a POSITIVE impact because they (you can choose up to 3 options): *

- ☐ valorise biomass residuals and wastes, that otherwise will be unexploited
- ☐ reduce the amount of waste in landfills
- ☐ are more sustainable
- ☐ are innovative
- ☐ they result to new jobs
- ☐ can increase farmers' revenue thanks to the residuals valorisation
- ☐ can represent a vegan alternative
- ☐ reduce the use of the plastic
- ☐ many of them are compostable
- ☐ use less CO2 during their production
- ☐ can be recycled and used for the creation of new BBPs
- ☐ are produced using non-food crops cultivated in marginal lands, so reducing desertification
- ☐ I do not think that BBPs could have a positive impact
- ☐ I do not know

In your opinion, BBPs could have a NEGATIVE impact because they (you can choose up to 3 options): *

- ☐ are not always more sustainable than the fossil-based ones
- ☐ requires more resources (e.g. water, electricity, etc.) to be produced with respect to the fossil-based ones
- ☐ refineries where compounds are extracted from biomass are more pollutant than the traditional refineries
- ☐ represent just a green-washing practice for pollutant big companies, so they can appear more environmentally friendly than they really are
- ☐ lead consumers to believe they can throw them everywhere in the environment due to the fact that BBPs are biodegradable
- ☐ are produced using food crops resources, reducing food availability and increasing hunger
- ☐ produce more CO₂ compared to the fossil based ones, considering the whole life cycle
- ☐ create doubts about their end life (e.g. where to throw them): human errors made by people reduce the wastes quality and the possibility to re-use them
- ☐ have a shorter life than the fossil-based ones: so you must buy and use more products than now, creating an higher quantity of garbage
- ☐ I do not think that BBPs could have a negative impact
- ☐ I do not know

What motivates you to buy BBPs? (you can choose up to 3 options): *

- ☐ It is a sustainable choice
- ☐ They are natural products
- ☐ They are the only alternative to plastics
- ☐ I have the possibility to contribute to reduce pollution
- ☐ It is a way to fund innovative solutions
- ☐ They are coherent with my lifestyle (e.g. vegan choices)
- ☐ They make me feel cool
- ☐ Because companies that produce BBPs often are involved in environmental campaigns (e.g. they donate money per each product sold)
- ☐ To push the other brands to switch to bio-based products with my purchase choice
- ☐ Prices are more or less the same but BBPs are more sustainable
- ☐ They are compostable and I can reduce the not-recyclable wastes
- ☐ They are biodegradable
- ☐ I do not want to buy them anyhow
- ☐ I do not know

Why would you NOT buy BBPs? (you can choose up to 3 options): *

- ☐ Big brands use BBPs to cover their negative environmental impacts: just green washing practice!
- ☐ I do not feel safe in using them
- ☐ Their performances are generally lower than fossil-based products
- ☐ Prices are higher and I do not want to pay so much
- ☐ Prices are higher and I cannot afford them
- ☐ I do not know where to throw them
- ☐ I am conservative in my purchase choices and, in general, I am not open to changing them
- ☐ It is not generally true that they are more sustainable than the fossil-based ones
- ☐ I have no enough information about them
- ☐ I am not interested in them
- ☐ They are just a temporary trend and I do not follow them
- ☐ They are just a way used by brands to make you pay more and earn more
- ☐ I do not know

How much more are you willing to pay for BBPs compared to the fossil-based ones? *

- ☐ The price does not matter, I will not buy BBPs anyway
- ☐ I am available to pay only the same price
- ☐ up to 5% more
- ☐ up to 20% more
- ☐ up to 50% more
- ☐ I will buy BBPs in any case, the price does not matter to me
- ☐ I do not know

In which sector are you willing to buy BBPs? (you can choose up to 3 options) *

- ☐ Pharma & nutraceutic
- ☐ Cosmetics
- ☐ Packaging
- ☐ Automotive
- ☐ Toys
- ☐ Single-use products (e.g. dishes, cups, etc)
- ☐ Textile and fashion
- ☐ Constructions
- ☐ Cleaning
- ☐ Energy (biofuels, bioenergy, etc)
- ☐ Bio-fertilisers
- ☐ Food
- ☐ I do not know

In which sector are you NOT willing to buy BBPs? (you can choose up to 3 options) *

- ☐ Pharma & nutraceutic
- ☐ Cosmetics
- ☐ Packaging
- ☐ Automotive
- ☐ Toys
- ☐ Single-use products (e.g. dishes, cups, etc)
- ☐ Textile and fashion
- ☐ Constructions
- ☐ Cleaning
- ☐ Energy (biofuels, bioenergy, etc)
- ☐ Bio-fertilisers
- ☐ Food
- ☐ I do not know

What could motivate you to buy BBPs? (you can choose up to 3 options) *

- ☐ Information campaigns about BBPs
- ☐ Clear information on products end-life
- ☐ Financial incentives (e.g. discounts, tax reduction, etc)
- ☐ Financial disincentives on fossil-based products (e.g. plastic-tax, etc)
- ☐ More information on BBPs performance
- ☐ Clear information on the whole value chain
- ☐ Information on the feedstock used
- ☐ Good example from influencers
- ☐ Higher adoption by brands
- ☐ The possibility to contribute on the product design
- ☐ Price reduction
- ☐ Making them more recognisable (in particular respect to the fossil-based ones)
- ☐ Higher products availability in the malls, online stores, etc.
- ☐ To know more about the innovation that generated the product
- ☐ To buy regional products and support regional brands
- ☐ I do not know

Would labels of bio-based product help you to choose bio-based products over fossil-based products? *

- ☐ Yes
- ☐ No
- ☐ I do not know

What is the most important information that you'd like to see on a BBP label? *

- ☐ amount of bio-based contents in the product
- ☐ information on BBP recyclability
- ☐ BBP biodegradability
- ☐ BBP compostability
- ☐ feedstock used for the production of BBPs
- ☐ use of GMO-free feedstock
- ☐ information on where to throw it correctly
- ☐ I do not know

From whom would you like to receive more information about BBPs? (Up to 3 answers) *

- ☐ in your family
- ☐ friends
- ☐ in your workplace
- ☐ researchers
- ☐ TV
- ☐ social networks
- ☐ influencers
- ☐ from brands
- ☐ shopping centres
- ☐ service companies
- ☐ magazine/journals
- ☐ Other media
- ☐ Other

Final questions

Your country: *

La tua risposta

You are: *

- ☐ Female
- ☐ Male
- ☐ Prefer not to say

Your age *

- ☐ <18
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-65
- ☐ >65

Your education *

- ☐ secondary school diploma
- ☐ high school degree
- ☐ bachelor degree
- ☐ master degree
- ☐ PhD

Your work: *

- ☐ Student
- ☐ Office worker
- ☐ Labourer
- ☐ Entrepreneur
- ☐ Worker of the agriculture value chain
- ☐ Autonomous worker
- ☐ Unemployed
- ☐ Retired
- ☐ Prefer not to say
- ☐ Other

What category do you belong to? *

- ☐ Civil society/NGOs
- ☐ Research/academia
- ☐ Industry
- ☐ Policy maker
- ☐ Business/Finance

Are you working in the bioeconomy sector? *

- ☐ Yes
- ☐ No
- ☐ I do not know

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