

ALFA surveys: findings on current perceptions, barriers and needs

ALFA's surveys

Citizen survey

Experts and other stakeholders survey

Purpose

Identify common (mis)perceptions about biogas production from manure among EU citizens;
Examine how sociodemographic and psychological factors influence personal attitudes and ultimately public acceptance

Better understanding of stakeholders' awareness, preferences, intentions, acceptance levels, needs and challenges around livestock farming biogas uptake

Methodology and sample

Structured questionnaire spread through crowdsourcing platform; ~3000 responses

Structured questionnaire shared by ALFA partners across their networks; 269 stakeholders incl. farmers, advisors, researchers, etc.

Citizen survey: aim and overview

We conducted a large-scale survey of EU citizens to:

- **Assess the current knowledge, views and awareness levels of EU citizens** regarding biogas and biomethane.
- **Identify the common misperceptions and attitudes towards the use of manure to produce biogas** among European citizens.
- **Study how different factors influence personal attitudes and ultimately social acceptance** of biogas production in livestock farming, including:
 - Socio-demographic variables
 - Psychological factors
 - Moral values
 - Awareness and familiarity

Citizen survey: methodology

- **Structured questionnaire** based on relevant literature.
- Distributed via a paid **crowdsourcing platform** to adults residing in the EU.
 - **Sample: 2997 valid and complete responses** (respondents that failed 'attention check' questions and/or completed the survey too fast were disqualified).
 - Conducted in **February 2023**.
- The **data analysis** applied linear regression and other statistical methods.

Citizen survey: results

Views and attitudes

- EU citizens have, **on average, positive views** on the potential environmental and economic benefits of biogas production from manure.
- However, a sizeable minority (1/3 to 1/2) remain concerned about:
 - the health impact on people living near biogas plants
 - the safety of biogas production technology
 - additional smells from treating manure to produce biogas
 - a devaluation of property values in a plant's neighboring area

Citizen survey: results

Knowledge and awareness

- On a scale of 1 (“never heard of it”) to 10 (being “highly familiar”), the **average level of familiarity with biogas production was 3.89.**
- Only 43% of the respondents answered correctly the 3 basic questions about biogas, its production process and its uses
- EU citizens that are **more familiar** with the concept of biogas production **and more knowledgeable** on the topic **are more positive** about biogas:
 - more willing to support its adoption and less likely to hold negative perceptions about its impact on health, the environment, safety, etc.
 - Thus, to some extent, **misperceptions stem from a lack of awareness and familiarity** with biogas production and manure management technologies.

Citizen survey: results

Acceptance, perceptions and attitudes on biogas production

- Satisfaction with the construction of a biogas plant using manure depends on its closeness to the respondent's home:
 - EU citizens are more likely to be satisfied with the construction of a plant at a distant location from their homes, in line with NIMBY attitudes.
 - Only 23% of respondents would be satisfied with the construction of a plant within 500m of their homes, while 61% and 79% would tolerate a plant in their municipality or province (respectively).
 - Most would require compensation to be satisfied with the plant's construction next to their home, and a third would even reject a 10% discount on their electricity bill.

Citizen survey: results

Variables influencing the uptake of biogas production in European livestock farms through their effects on personal attitudes and ultimately public acceptance.

- **Socio-economic factors**

- Age and gender were not found to be a statistically significant predictor of the studied attitudes.
- Education was a significant predictor of perceptions about the health, odour and safety impacts of biogas: people with **higher levels of formal education view it as a more concerning issue**.
- Income. Results suggest that people with lower income levels were more likely to be concerned (only) about the safety and environmental impact of biogas technology and production.

- **Trust levels** correlate with social acceptance: people who exhibit **higher trust in farmers and authorities are more positive about biogas made from manure**, for instance being:

- more willing to accept both the spending of taxes and the reduction in their energy consumption to support the adoption of biogas
- showing less concerns about potential negative health or safety impacts from biogas

Citizen survey: results

- **Environmental values.** People who care more about the environment were found to:
 - Be more prone to believe biogas production will decrease emissions and pollution
 - Interestingly, they are also more likely to be concerned about the safety of biogas technology
- A propensity to feel **disgust** in certain situations involving animals is associated with lower social acceptance of biogas systems using manure.
 - It increases the likelihood to exhibit concerns about the impact on people's health and the environment, bad smells from plants, and the safety of biogas and biomethane production.
 - It also increases the perception that biogas is a contaminated source of energy.
 - In contrast, other RES like solar, wind, or hydro energy were perceived as more natural.
 - It negatively affects satisfaction with a plant being installed close to one's home; more specifically, requiring more compensation for it and being less likely to vote in favor of it.

Experts and other stakeholders survey: aim and overview

- Survey of key **actors involved in the biogas in farming value chain** across the EU
 - Including experts (researchers, advisors), farmers, biogas technology companies, authorities
 - 269 valid responses
- Identify **factors that either facilitate or hinder the adoption of biogas** production technologies in livestock farming in the EU
- Discuss the **main support needs** that have to be addressed to overcome them
- Identify **differences across EU countries**, focusing on Italy, Denmark, Belgium, Slovakia, Greece, and Spain

Experts survey: methodology

- **Literature review** to classify potential barriers that affect the willingness to invest in biogas technologies.

Theme	Examples of barriers
Economic and financial	Financial feasibility and risk; dependency on subsidies to install a biogas plant; volatility of energy prices; etc.
Environmental	Environmental side-effects of policies promoting biogas, for example from an intensive use of energy crops.
Institutional (policies and regulations)	Permits to install plants; requirements on substrates to produce digestate, which can deter farmers to use inputs with even small pollution levels, etc.
Technical	Difficulties to collect agricultural residues and manure; need to add extra feedstocks due to high concentrations of water in manure; etc.

- Structured **questionnaire**
- Use of ALFA's partner networks in each hub and across the EU to distribute the survey
 - Responses were gathered from late January to early April 2023.

Let us know your thoughts...

ALFA Webinar #1

What challenges or needs are particular to your region?

On what challenges should EU policy focus in the next 3 years?

SCAN ME

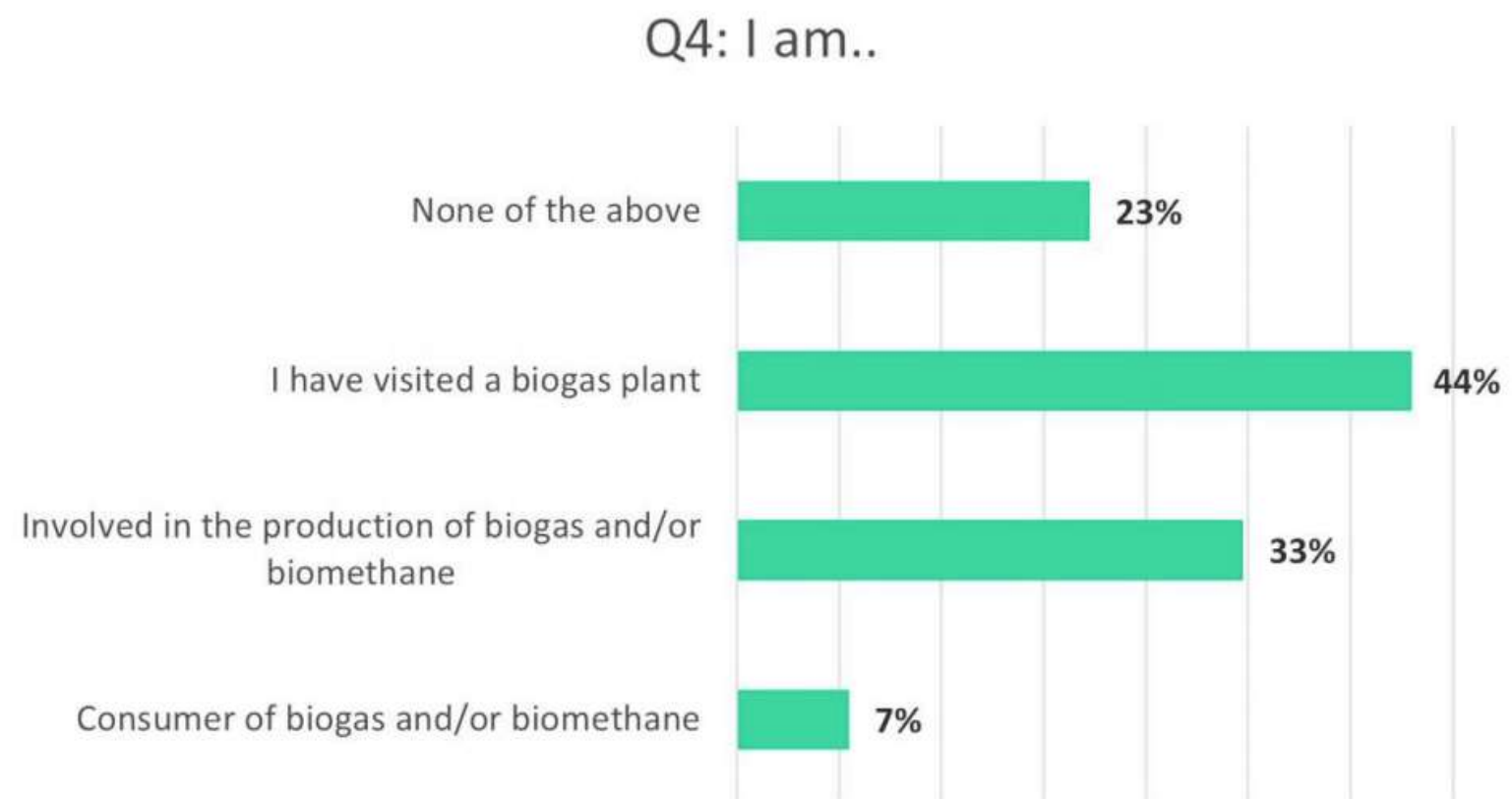


On what challenges should EU policy focus in the longer term?

How can policy makers overcome them?

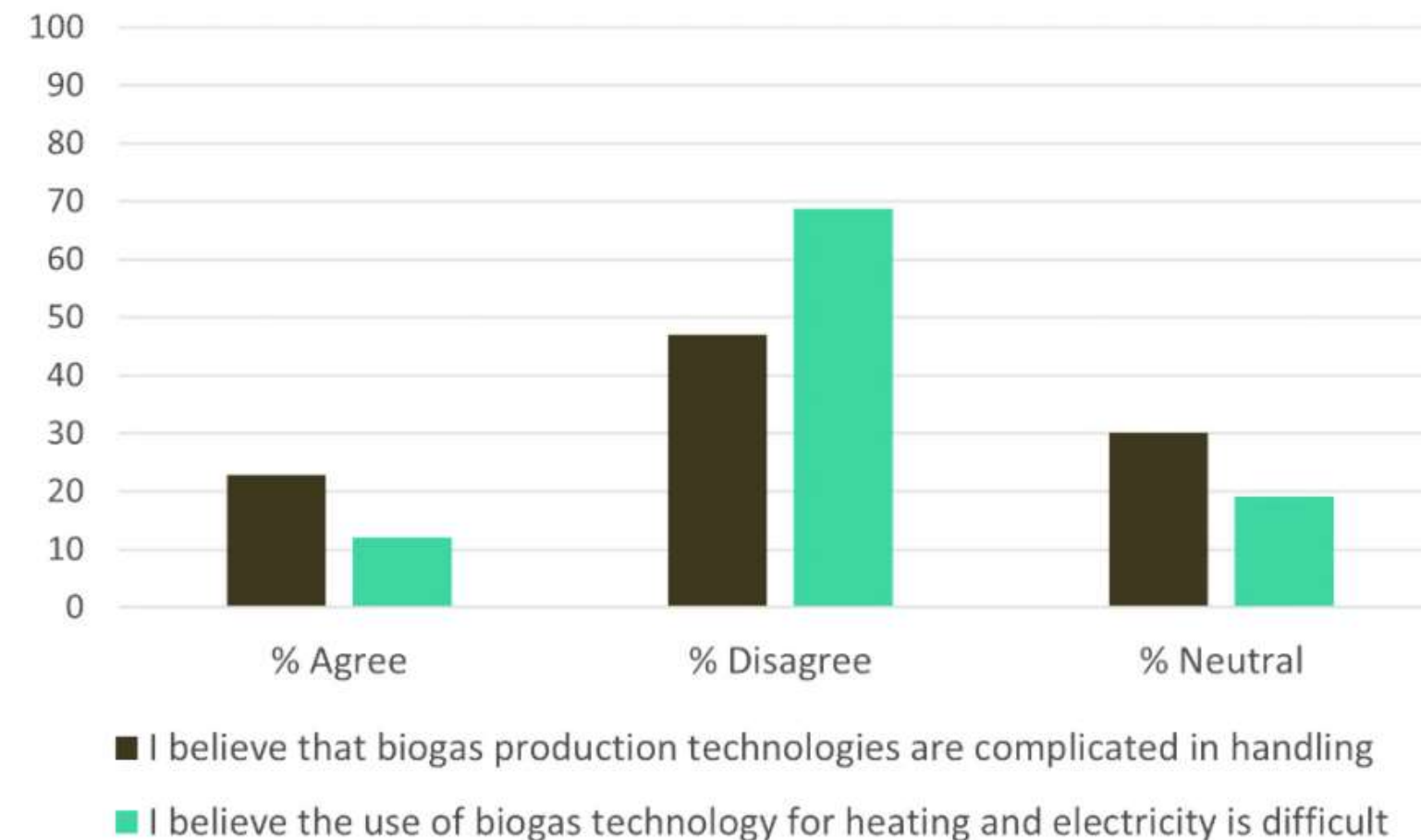
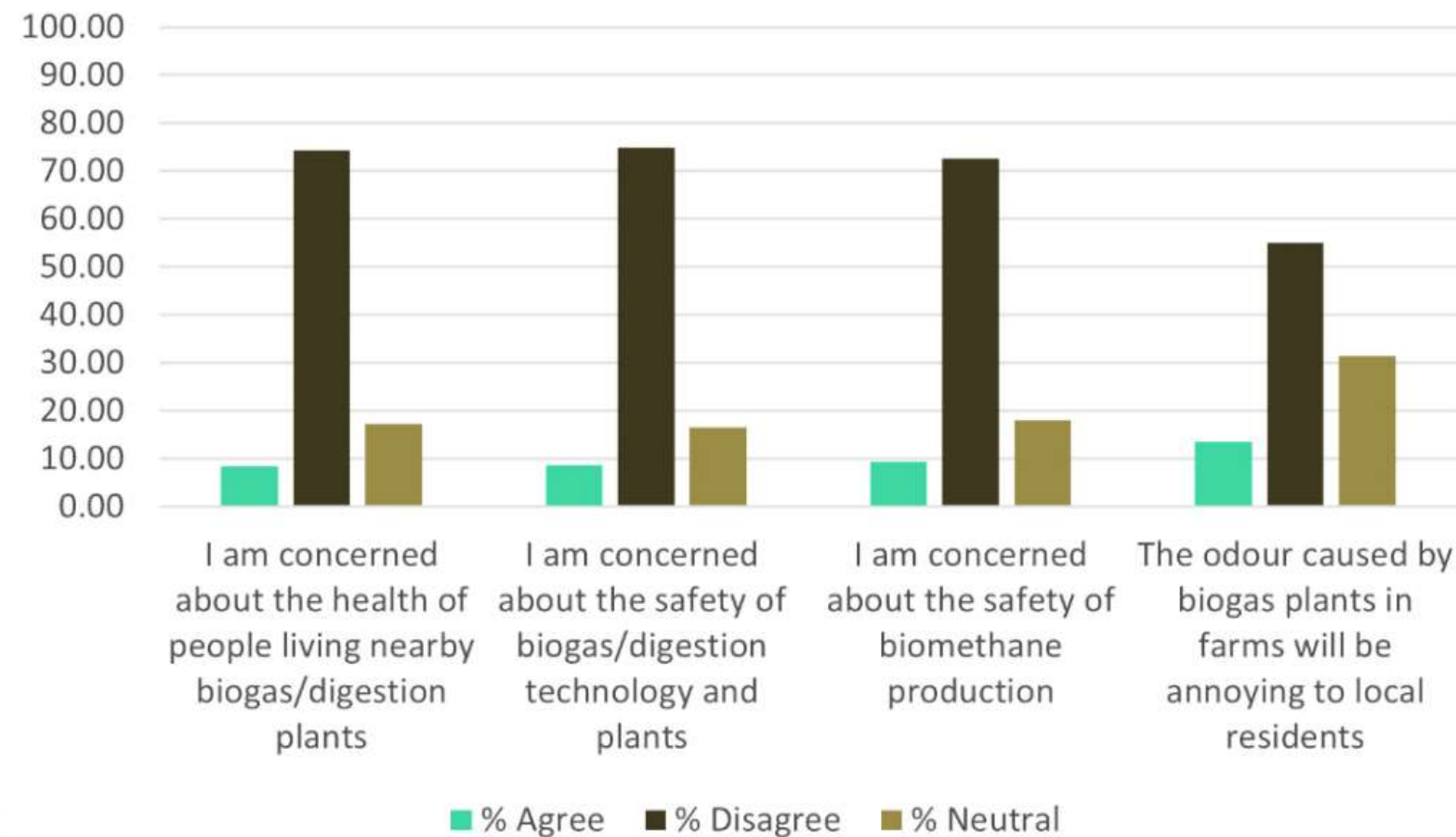
Experts survey: Awareness levels

- **Livestock farmers** – on average – scored their own **level of familiarity** with biogas production as **7.81 (out of 10)**
- All other stakeholders had higher scores, e.g. academics/researchers (8.94)
- Almost half of the respondents in our sample had visited a biogas plant; over 1/3 were involved in the biogas supply chain



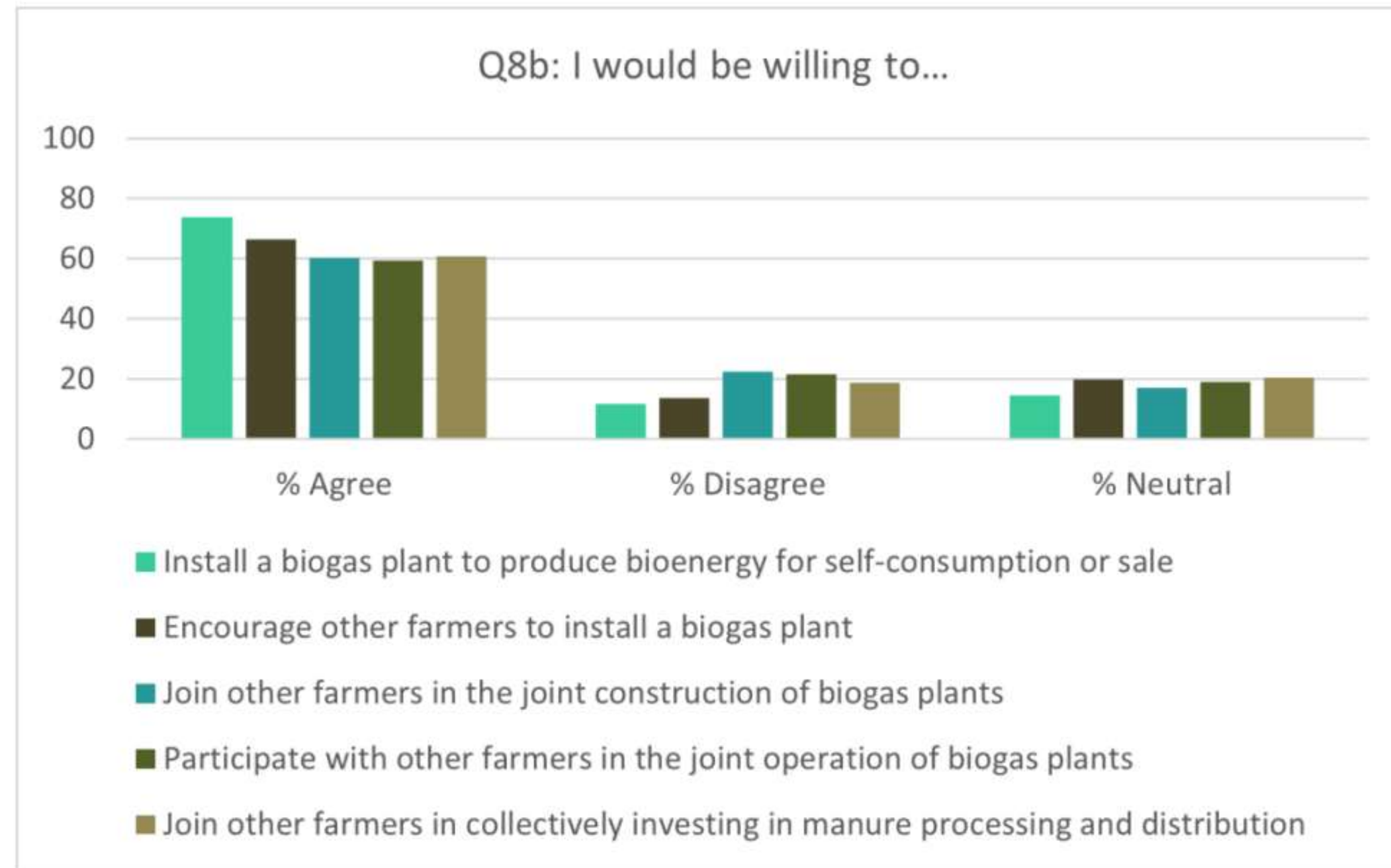
Experts survey: Perceptions

- Overall, **positive views on the impact of biogas production from manure**
- Overall, **the operation of biogas plants is not seen as complicated**, but there is a need for more awareness and capacity building



Experts survey: Intentions

- Overall, **positive intentions by EU livestock farmers to invest in biogas production and biogas plant operation**



Main barriers



- 1 Financial feasibility and uncertainty of return**
- 2 Complex authorization and administrative processes**

Other key barriers



- **Technical barriers:** Lack of technical knowledge, technical constraints for collecting manure, etc.
- **Economic barriers:** high investment costs, investment risk, etc.
- **Institutional barriers:** uncertain policy landscape, lack of political support, etc.
- **Socio-cultural barriers:** lack of farmers' awareness, environmental concerns (e.g. odour complaints), etc.

Main barriers: country examples

Barriers



- **Technical barriers:** Lack of gas infrastructure and commercial availability of biomethane.
- **Economic barriers:** lack of subsidies and financial support.
- **Institutional barriers:** unsupportive regulatory framework.

Barriers



- **Economic barriers:** Hesitation to invest due to the lack of a minimum guaranteed price, along with high taxes on excessive income from the sale of electricity.
- **Institutional barriers:** cumbersome and nontransparent bureaucratic processes.

Barriers



- **Institutional barriers:** Uncertain policy framework; complex administrative and legal procedures.
- **Socio-cultural barriers:** Lack of awareness and citizen resistance, e.g. due to environmental and odour concerns; potential NIMBY attitudes.

Enabling factors and policies to the adoption of biogas in livestock farming



Enablers



- Public financial support schemes for biogas injected to the grid
- Direct public financial support schemes for farmers that invest in biogas plants
- Regulatory mandates on digestate processing and manure management



Enablers



- Mature market for small biogas plants
- Access to finance for small investments and purchasing power
- Public financial support schemes for biogas injected to the grid



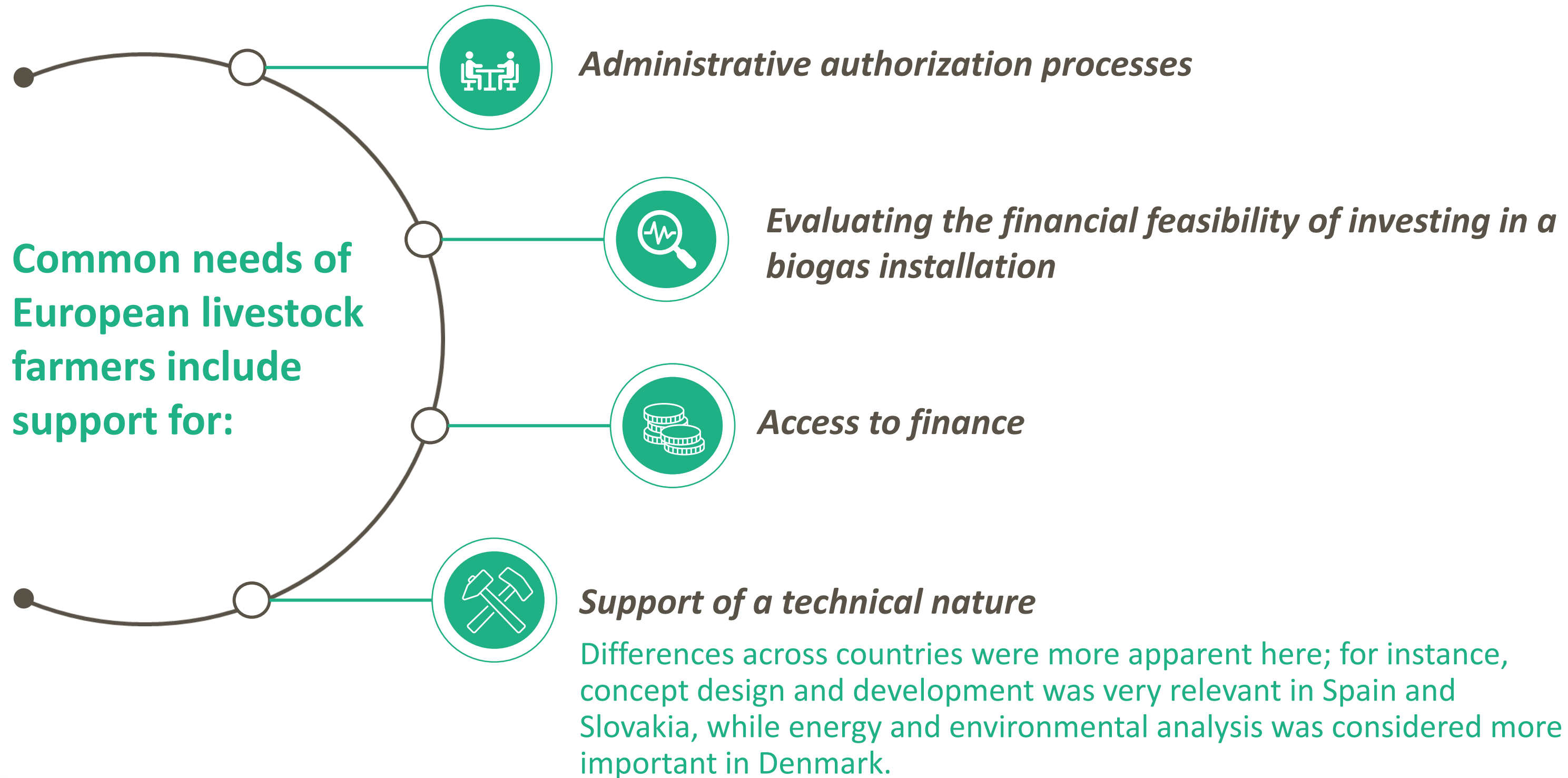
Enablers



- Mature market also for large installations
- Public financial support schemes for biogas injected to the grid



Needs



Conclusions

- Citizens remain concerned about potential negative impacts of biogas plants using manure
 - Misconceptions regarding health, safety, bad smells and home value depreciation.
 - Concerns can be explained by low levels of awareness and familiarity with biogas and its production technologies
 - The perceptions and attitudes of experts are in general more positive.
 - **Limitation:** the experts sample included substantially more respondents from rural areas than the citizen one (55% vs 12%)
- Psychological factors and moral values have a clearer effect on the views of EU citizens towards biogas production in livestock farming than socio-demographic factors.
- Overcoming the identified barriers to unlock the potential of biogas production in EU livestock farms will require a combination of measures:
 - Awareness raising campaigns to reduce misperceptions about biogas
 - Simplification of administrative procedures
 - Public funding to reduce the financial uncertainty of investments in biogas plants, which entail long payback times.

Policy recommendations

To increase societal acceptance of biogas production in livestock farming, authorities should consider **addressing misperceptions via awareness raising campaigns**.

To this end, they should **focus their messages on the following issues**:

- (i) showing the potential positive impacts of biogas production and use on the environment;
- (ii) showing that using manure does not make biogas a “dirty” source of energy;
- (iii) showing that biogas production in livestock farms does not lead to increased bad smells nor has side effects on people’s health (especially directed to people living nearby farms);
- (iv) giving visibility to farmers that have biogas installations to increase trust in farmers;

Let's discuss your thoughts...

Q & A

Let's discuss your thoughts...

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All responses to your question
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Each response can be up to 200
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