



iGEM 2022 Groningen: Public Opinion Regarding GMOs Survey

Informed consent participation research:

This research is being conducted by a team of students from the University of Groningen and Hanze University Groningen, as part of the international Genetically Engineered Machine (iGEM) competition. iGEM was set up to give students the opportunity to work on an interdisciplinary synthetic biology project.

This year, the team will develop an alternative strategy to protect poultry on a large scale from the highly pathogenic avian influenza virus. In addition to the technical aspect of our strategy that we are investigating in the laboratory, there is also a societal aspect that plays a major role in our project. We are very curious about public opinion towards bird flu, vaccinations in the animal industry and the use of genetically modified organisms in the animal industry. This is the reason we want to conduct a short survey to gain more insight into this.

The bird flu epidemic is a sensitive topic and may perhaps arouse emotional feelings. Participation in this survey is completely voluntary and you may withdraw at any time without giving a reason by emailing igemteam@rug.nl. Personally identifiable data will never be published. Raw data will be secured on a password-protected server with multi-factor authentication available only to the team and its supervisors. Completing and submitting this survey implies that we will use and process the completed data in our research. Non-personally identifiable data resulting from the survey will be summarized in figures and published on the iGEM Groningen 2022 webpage. After publication of non-personally identifiable data (no later than October 1, 2022), it is no longer possible to remove and/or change data points from specific participants. Raw data resulting from the survey will be removed from our internal servers on January 1, 2023.

To participate in the survey, you must be 18 years of age or older and reside in a member state of the European Union. For questions regarding the above, or to subsequently withdraw from the survey, please email igemteam@rug.nl. For further questions or comments about the handling of your personal data, you can also address the Data Protection Officer of the University of Groningen (privacy@rug.nl).

It will take about 10 minutes to complete this survey. There is no right or wrong answer. Enter the first thing that comes to mind once you understand the question correctly.

By answering 'YES', you confirm that you have read and understood the information and conditions, and agree to participate in this survey.

Yes / No

Email address (This will never be published and is only needed to be able to delete your response after the survey if that is needed):

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Education.

- Pre school /
- High school /
- Dutch MBO /
- Dutch HBO /
- Universit /
- Not applicable.

Age.

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Gender.

- Male
- Female
- Non-binary / other
- I'd rather not say

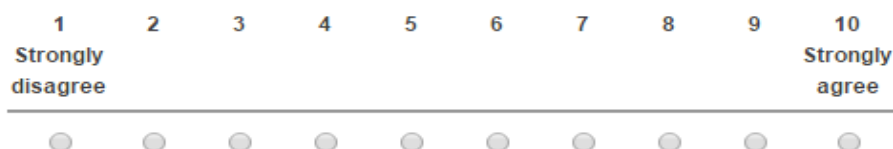
Living Area.

- Drenthe
- Groningen
- Friesland
- Overijssel
- Flevoland
- Gelderland
- Utrecht
- Noord Holland
- Zuid Holland
- Zeeland
- Brabant
- Limburg
- I don't live in the Netherlands

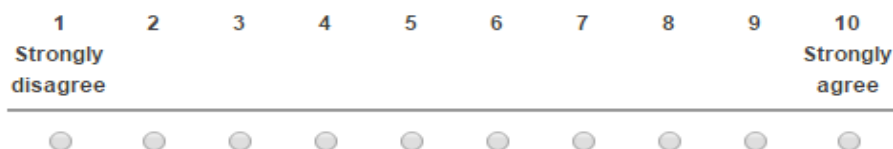
Meat consumption each week on average.

- 21 times or more each week
- 16-20 times each week
- 11-25 times each week
- 6-10 times each week
- 2-5 times each week
- 1 time each week
- I dont eat meat, I am vegetarian
- I dont eat meat, I am vegan
- Other, namely

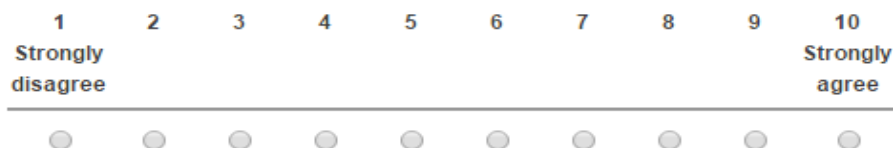
- 1. In general, I support vaccination of livestock if it is safe for consumers and animals, and better protects animals from disease.**



- 2. I am concerned about the presence of vaccines in meat that has been proven safe for consumption.**



3. I would eat meat from animals that have been vaccinated if research shows it is safe.



4. I support treating chickens with a vaccine if it specifically prevents the spread of the highly contagious influenza virus among poultry, as long as it remains safe for consumers and poultry.

[illegible]

5. Before I buy any meat item, I always check carefully whether it comes from a vaccinated animal.

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

- 6. Personally, I worry about outbreaks of the highly contagious bird flu in wild birds.**

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

- 7. Personally, I am concerned about outbreaks of the highly contagious bird flu in the poultry industry.**

[illegible]

- 8. I support the way we raise poultry in the poultry industry in the Netherlands.**

[illegible]

- 9. We need an alternative (such as vaccination) to the current measures to stop the spread of the avian influenza virus among poultry (e.g., culling, confinement, transport restrictions).**

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

● ● ● ● ● ● ● ● ● ●

10. The first word that comes to mind when you think of "Genetically Modified Organisms (GMO, English: GMO).

The following questions will be about animals protected from disease by genetically modified organisms (GMOs) that live in their lungs.

Since we need to vaccinate 100 million poultry in the Netherlands alone, normal vaccinations against bird flu are expensive and logistically difficult. For our project, we are creating an alternative to vaccines, using treatment with genetically modified organisms (GMOs) to protect poultry from the virus quickly, and on a large scale. We will genetically modify bodily bacteria from the chicken lung to broadly target and kill avian influenza viruses. Once this genetically modified bacteria (the GMO) is back in the chicken's lung, these bacteria can protect chickens from infections of the highly contagious avian influenza virus.

This strategy does not use virus particles that stimulate the chickens' immune system (like vaccination), but works independently of the chickens' immune system. Thus, the GMO lives only in the chicken's lungs, and will only produce small pieces of antibodies there.

11. In general, I favor treating livestock lungs with genetically modified organisms (GMOs) if it is safe for consumers and animals, and better protects animals from disease.

[illegible]

12. I am concerned about the presence of GMOs in meat that has been proven safe for consumption.

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

● ● ● ● ● ● ● ● ● ●

13. I am generally concerned about GMOs in the food industry (such as GMO tomatoes).

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

14. I would consume meat from animals treated with a GMO if research shows it is safe, and GMOs are not present in the meat.

[illegible]

15. I support GMO treatment of livestock, rather than regular vaccination, if it is safe and cheaper.

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

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16. I favor GMO treatment of livestock, rather than regular vaccination, if it is safe, cheaper, and more protective against the spread of disease.

[illegible]

17. I support treating chickens with a GMO if it specifically prevents the spread of the highly contagious influenza virus among poultry, as long as it remains safe for consumers and poultry.

[illegible]

18. I would consume eggs from chickens treated with a GMO if research shows it is safe, and GMOs are not present in eggs.

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree

● ● ● ● ● ● ● ● ● ●

19. I prefer animal products (such as meat or eggs) from livestock that have GMOs living in their lungs to vaccinated livestock.

1 2 3 4 5 6 7 8 9 10
Strongly disagree Strongly agree