

Supplementary File

Table S1. List of original items used in the study.

Variable label	Item	Translation
<i>Prior attitude</i>	7-point item scale [1 = agree not at all, 7 = fully agree]	
VE02_02	Die Umweltauswirkungen von Fleischverzehr werden zukünftig erhebliche Auswirkungen auf das Leben der Menschen haben.	The environmental consequences of meat consumption will have a significant impact on people's lives in the future. [problem awareness]
VE02_03	Ich kann durch bewussten Fleischkonsum dazu beitragen, die Umwelt zu schützen.	I can help to protect the environment by consuming meat consciously. [willingness to assume responsibility]
VE02_08	Die Folgen des heutigen Fleischverzehrs betreffen jeden.	The consequences of today's meat consumption affect everyone. [problem awareness]
VE02_09	Es gibt größere Probleme als die Folgen des heutigen Fleischverzehrs.	There are bigger problems than the consequences of today's meat consumption. [problem awareness]
VE02_10	Bürger, die im Alltag auf Fleisch verzichten, tragen wesentlich zur Vermeidung von Umweltschäden bei.	Citizens who do without meat in their everyday lives make a significant contribution to preventing environmental damage. [willingness to assume responsibility]
<i>Prior knowledge</i>	7-point item scale [1 = not at all informed, 7 = very well informed]	
VW10_01	Was schätzen Sie, wie gut sind Sie über das Thema ‚Umweltauswirkungen von Fleischverzehr‘ informiert?	In your opinion, how well informed are you about the environmental impact of meat consumption?
<i>Feelings of dissonance</i>	7-point item scale [1 = agree not at all, 7 = fully agree]	
	Der Beitrag hat mich...	The contribution made me feel...
DE01_01	motiviert	motivated
DE01_06	erschrocken	scared
DE01_07	schuldig fühlend gemacht	guilty
DE01_08	beschämt	ashamed
DE01_09	verärgert	upset
DE01_10	angegriffen	offended
DE01_11	verunsichert	insecure
DE01_12	bestätigt	confirmed
<i>Information recall</i>	[Multiple choices in brackets; correct answer marked bold]	
FW01	Welche beiden Bundesländer werden im Beitrag vergleichend für die Fläche genannt, die jährlich an Regenwald in Brasilien abgeholzt wird? [Schleswig-Holstein & Niedersachsen; Schleswig-Holstein & Thüringen ; Niedersachsen & Schleswig-Holstein; Hessen & Baden-Württemberg; Rheinland-Pfalz & Sachsen-Anhalt; Weiß nicht]	Which two federal states are mentioned in the contribution in comparison for the area of rainforest that is cut down annually in Brazil? [Schleswig-Holstein & Lower Saxony; Schleswig-Holstein & Thuringia ; Lower Saxony & Schleswig-Holstein; Hesse & Baden-Württemberg; Rhineland-Palatinate & Saxony-Anhalt; Don't know]
FW02	An welchem Fluss ist die im Beitrag genannte Todeszone? [open: Mississippi]	On which river is the death zone mentioned in the contribution located? [open: Mississippi]

Supplementary File | What Remains in Mind? Information Recall and the Effectiveness and Efficiency of Explainers

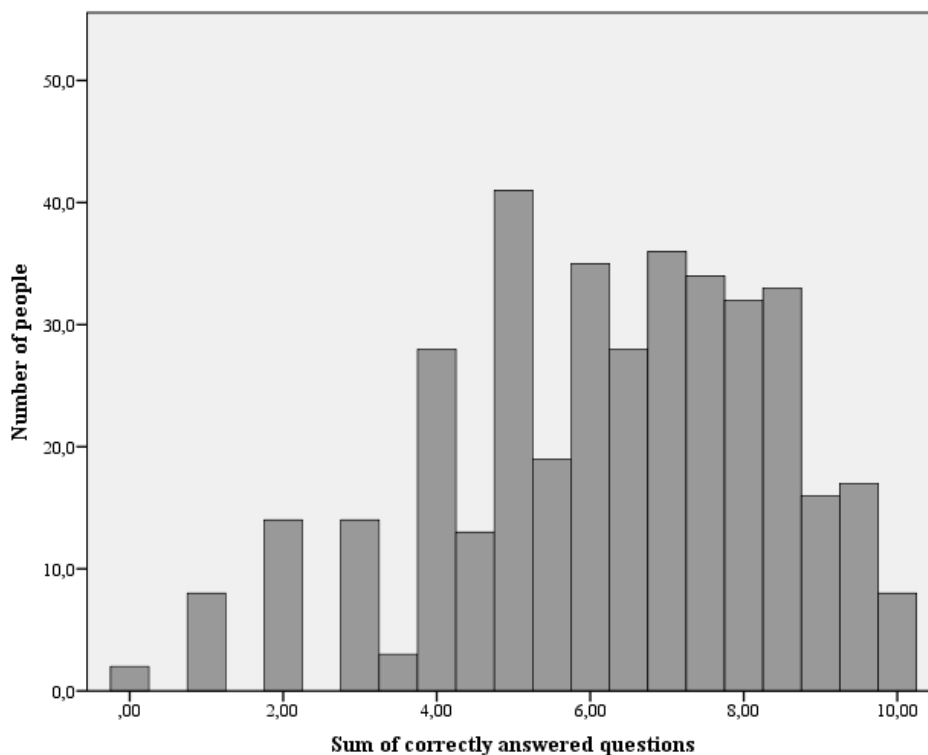
FW03	Wie viele Emissionen stößt die Nutztierhaltung laut Beitrag im Vergleich zu allen Autos, Lastern, Flugzeugen und Schiffen der Welt zusammen aus? [Weniger; Gleich viele; Mehr ; Weiß nicht]	How many emissions does livestock farming produce according to the contribution, compared to all cars, trucks, airplanes and ships in the world together? [Less; Equal; More ; Don't know]
FW05	Wie groß ist weltweit der Anteil der Felder, auf denen laut Beitrag Tierfutter angebaut wird? [Ein Viertel; Ein Drittel ; Die Hälfte; Weiß nicht]	How large is the proportion of the world's fields on which animal feed is cultivated, according to the contribution? [One quarter; One third ; Half; Don't know]
FW06	Wie hat sich der Fleischkonsum der Deutschen laut Beitrag im Vergleich zu vor 100 Jahren verändert? [nicht verändert; verringert; verdoppelt ; verdreifacht; ist um ca. 20% gestiegen; Weiß nicht]	According to the contribution, how has meat consumption of Germans changed compared to 100 years ago? [not changed; decreased; doubled ; tripled; increased by about 20%; don't know]
FW07	Wie viele Menschen weltweit haben laut Beitrag keinen Zugang zu sauberem Trinkwasser? [1,1 Milliarden ; 2,7 Milliarden; 580 Millionen; Weiß nicht]	How many people in the world do not have access to clean drinking water according to the contribution? [1.1 billion ; 2.7 billion; 580 million; don't know]
FW08	Welcher Stoff gelangt laut Beitrag durch Gülle ins Grundwasser? [open: Nitrate]	Which substance enters the groundwater through liquid manure? [open: Nitrates]
FW09	Für welche Art von Fleisch gibt es laut Beitrag finanzielle Hilfe von der EU? [Pute; Rind; Hähnchen ; Schwein]	For what kind of meat there is financial support from the EU according to the contribution? [Turkey; beef; chicken ; pig]
FW10	In welches Land wird laut Beitrag eingefrorenes Hähnchenfleisch aus Deutschland verschifft? [Kongo; Kenia; Ghana ; Gambia]	According to the contribution, to which country is frozen chicken meat from Germany shipped? [Congo; Kenya; Ghana ; Gambia]
FW11	Aus welcher Region stammt laut Beitrag das Soja, das für das Tierfutter verwendet wird? [open: Lateinamerika]	Which region does the soya used for animal feed originate from? [open: Latin America]
<i>Media use</i>	7-point item scale [1 = never, 7 = several times a day]	
M101_01	Internet	internet
M101_02	Fernsehen	television
M101_03	Radio	radio
M101_04	Print (Zeitungen und Zeitschriften)	print (newspapers and magazines)
<i>Gender</i>	[weiblich / männlich / divers]	[female / male / diverse]
<i>Age</i>	[offene Eingabe]	[open entry field]
<i>Formal education</i>	[kein Abschluss / Hauptschulabschluss / Mittlere Reife / Fachabitur / Abitur / Studienabschluss / Promotion]	[no degree / lower secondary school leaving certificate / secondary school leaving certificate / vocational baccalaureate / A-levels / university degree / doctorate]

Table S2. Zero-order correlations of measured variables (N = 366-381).

Variable	1	2	3	4	5	6	7	8	9
1. Factual knowledge	—	.04	.316**	.127*	.144*	-.025	-.018	.097	.116*
2. Feeling of dissonance		—	.054	-.222**	.195**	.124*	.102	-.235**	-.197**
3. Exposure time			—	-.054	.02	.001	.113*	-.025	-.011
4. Prior knowledge				—	.392**	.057	.092	.109*	.244**
5. Prior attitude					—	-.069	.073	-.208**	.091
6. Media use						—	.483**	.122*	-.094
7. Age							—	.162**	-.12*
8. Gender								—	.064
9. Education									—
	1	2	3	4	5	6	7	8	9

Notes. * $p < .05$. ** $p < .01$

Table S3. Histogram of the sum of correctly answered factual questions.



Stimuli

Selected screen shots of the four medium conditions. The original stimulus can be accessed here: <https://edeos.org/projekte/fleisch-und-nachhaltigkeit/>

Nun möchten wir Ihnen einen kurzen Videobeitrag der Agentur für Erklärinhalte 'edeos' über Fleischverzehr und dessen Auswirkungen auf die Umwelt präsentieren. Bitte schauen Sie sich den Videobeitrag vollständig an. Klicken Sie dazu auf das dreieckige Play-Symbol in der Bedienleiste im Abspielfenster unten links. Sie können das Abspielfenster auch vergrößern. Klicken Sie dazu auf das viereckige Vollbild-Symbol in der Bedienleiste im Abspielfenster unten rechts.

Hinweis: Der Beitrag spielt mit Ton ab. Sollte dies nicht funktionieren, prüfen Sie bitte, ob die Lautsprecher eingeschaltet sind.



Figure 1. Video (excerpt; embedded in survey tool).



Figure 2. Scrolltelling (excerpt).



Meat and sustainability

A prior notice:

**To continue the survey after reading this text,
please close this document
and return to the survey questioning.**

Kebab, Schnitzel, curried sausage - We Germans love meat on our plates. Most of us like it several times a day. Sunday roast has long since become an everyday meal: We eat twice as much meat as we did 100 years ago.

These are in the course of your life: four oxen, four sheep, twelve geese, 37 ducks, 46 pigs, 46 turkeys and 945 chickens.

This puts us quite far ahead in a global comparison. We consume more than ten times as much meat as a person in Mozambique and 27 times as much as someone in India. Conventional fattening plants are factories that have nothing to do with the natural habitat of animals. The living conditions are unworthy for the animals and for us, if you take a closer look, not tasty at all. However, not only the animals pay a high price for the cheap meat. Our appetite also has a big impact on the environment and on our fellow human beings, sometimes at the "other" end of the world.

Let's take a kilogram of steak, for example: its production consumes a lot of water. By way of comparison, this is almost ten times as much as a kilo of bread. Quite a waste when you consider that 1.1 billion people worldwide have no access to clean drinking water. Moreover, we use it to water fodder crops, water cows and clean stables!

In addition, wastewater is a problem: in liquid manure there are nitrates and these seep into the soil and into the groundwater. Where many animals are kept, a lot of slurry is produced. In fact, so much that the groundwater there often exceeds the nitrate limits. Fun fact: The main source of drinking water in Germany is groundwater. The fertilizer from the food fields also gets into the water. This often causes the oxygen content to drop so sharply that animals can no longer live here.

Just like at the mouth of the Mississippi, a death zone of 20,000 square kilometers.

Let's stick to the food. In order for the animals we want to eat to grow quickly, they get concentrated feed, mostly soya from Latin America, from huge farms. Rainforest, one of the most species-rich habitats on earth, is cleared. Every year Thuringia and Schleswig-Holstein disappear in Brazil. No, not the federal states themselves - but an area of rainforest the size of their own. Now monocultures grow there as far as the eye can see. Pesticides and fertilizers ensure that everything grows great. But quickly the soil is overloaded and exploited. And then new fields, more pesticides and fertilizer have to be produced. This is bad for the environment and for the people who live and work there. Apropos: Many people who actually live here are driven out to make way for the fields. Most small farmers also have to give up their work. They cannot keep up with the prices of the mega farms. Instead, they now work on these farms, poorly protected against chemicals and for very little money. The export of soya is a deceptive blessing for developing countries: the profit goes into the pockets of less very rich farmers. Almost nothing remains in the country itself and the poor become poorer.

Let's go back to the example of the steaks: they cause many greenhouse gases. You know, climate change and so on. In this case, that's as many emissions as a car ride from Hanover to Potsdam. By the way, you don't get that far with pork or chicken.



How are emissions generated? Of course, there are the famous farting cows and sheep. About a third of the emissions originate from slash-and-burn for fodder plantations and pastures. CO² is released and the forests will be missing as emission storage in the future. Another third results from the fertilizer for the fodder. Worldwide, livestock farming blows more greenhouse gases into the atmosphere than all cars, trucks, airplanes and ships in the world put together!

Almost one billion people on earth live in hunger and the high consumption of meat in countries like Germany is part of the problem. After all, meat production requires a lot of space. Not necessarily the animals themselves, but the cultivation of the feed. Worldwide, animal feed grows on one third of the fields. Area that is lacking for the cultivation of food for humans.

In concrete terms: one hectare of land as an example. If you produce meat on it, it's enough for you and me, if you grow vegetables, for a family; and one hectare of potatoes feeds an entire football team including coaches and doctors.

As the population continues to grow, the space for our food is becoming increasingly scarce. Therefore, our cheap, surface-intensive meat turns out to be an unfair luxury, because with our eating style we don't even get enough of everyone. Then, there is the matter of chicken meat: in Germany, we produce it in mass animal husbandry and with financial help from the EU. But we prefer to eat only chicken breast, the rest sells badly.

This is why we freeze him and ship him to Ghana, for example. The farmers here also breed chickens, but on a small scale and without comparable subsidies as in the EU. Thus, the German meat - although it has travelled so far - is much cheaper than the chicken from Ghana itself. Our cheap meat destroys the markets in West Africa and prevents people there from being able to live off livestock. As you can see, our appetite for meat has serious consequences all over the world.

Note: To continue, please close this document and return to the survey.

Figure 3. Text (translated version).

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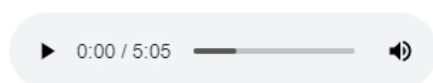


Figure 4. Audio (embedded in survey tool).