Perceptions About Gene Editing in Agriculture Among United States Residents

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FOUNDATION FOR FOOD & AGRICULTURE RESEARCH

BTI BOYCE THOMPSON INSTITUTE

ALLIANCE FOR SCIENCE

Contents

Introduction

To understand how a US audience perceives the use of gene editing in agriculture, the Alliance for Science and Foundation for Food and Agriculture Research commissioned a study by Hemispheres, a Seattle-based firm that conducts marketing analysis.

The study comprised six focus group sessions, each with six adult participants representing different geographic regions of the US, and an online survey of 1012 persons over the age of 18. The focus group sessions were conducted virtually between April 6-15, 2022. The survey was conducted online between May 26-June 5, 2022.

Survey results reflect a 95% confidence level. A sample of 1000 has a margin of error of ±3 percent.

The results were used to develop a messaging kit that can be useful in communicating effectively about gene editing in agricultural and environmental applications.

Summary

Most people have little understanding of gene editing and its use in agriculture, yet they are generally positive about the technology's potential. Their positivity increases when they are exposed to even brief descriptions of how gene editing is being applied. People are particularly interested in how gene editing can be used to increase yields and boost climate-resiliency in countries that are food insecure; reduce the use of water, pesticides and fertilizers; lower food prices; boost the nutritional value of food; help crops adapt to climate change; improve animal welfare, and address environmental problems, such as plastic pollution and greenhouse gas emissions from fossil fuels.

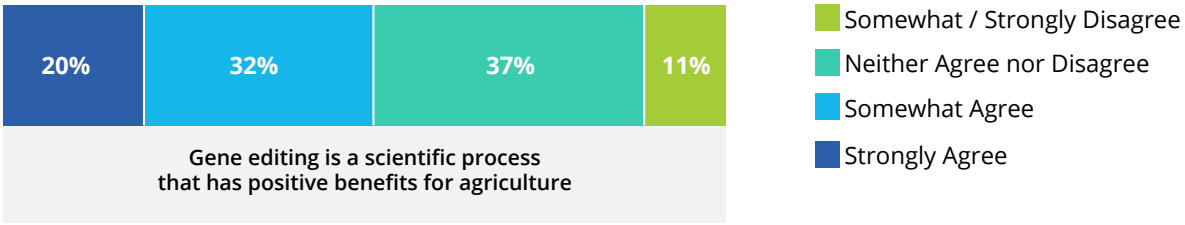
People want to know if the products they are consuming are gene-edited.

Key Survey* Findings

Sentiment and Knowledge

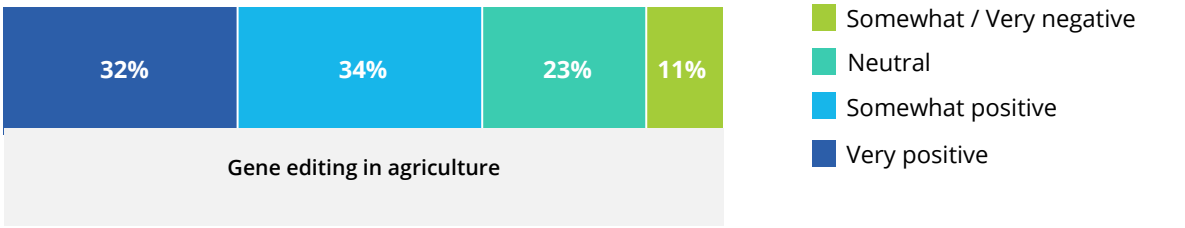
When first asked about gene editing (without any additional information) about half the respondents agree it has positive benefits for agriculture.

INITIAL GENE EDITING SENTIMENT



After reading brief introductory information, two-thirds feel positive about gene editing in agriculture. Neutral feelings toward gene editing decrease after people learn about possible benefits and applications of gene editing. Even people who remained consistently negative to gene editing became less so after learning more about the benefits.

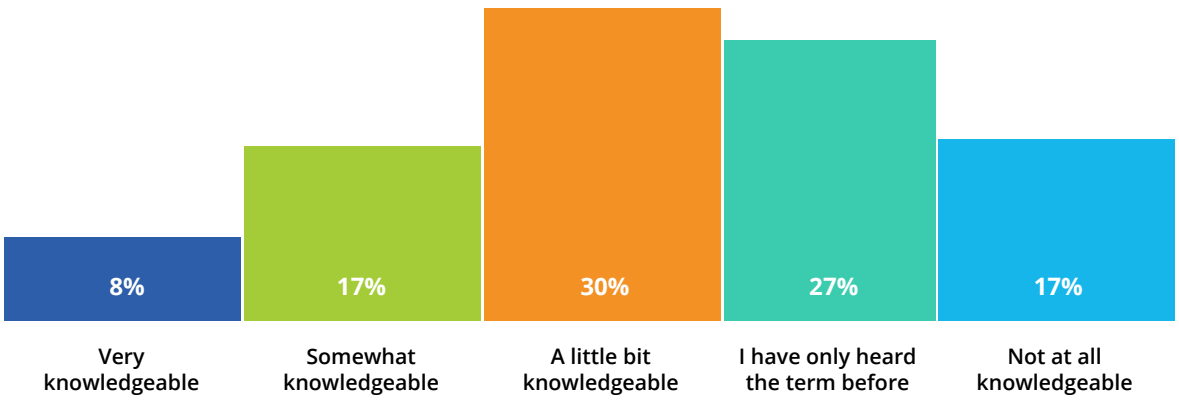
INTRODUCTORY SENTIMENT TOWARD GENE EDITING



Knowledge about gene editing is low.

- Almost three-quarters feel they have little to no knowledge about gene editing.
- Only one-quarter of people say they are very or somewhat knowledgeable about gene editing, so some people are making a best guess.
- More than a quarter have only heard the term with no additional knowledge nearly
- One-fifth have no knowledge of the concept of gene editing at all.

PRIOR KNOWLEDGE OF GENE EDITING

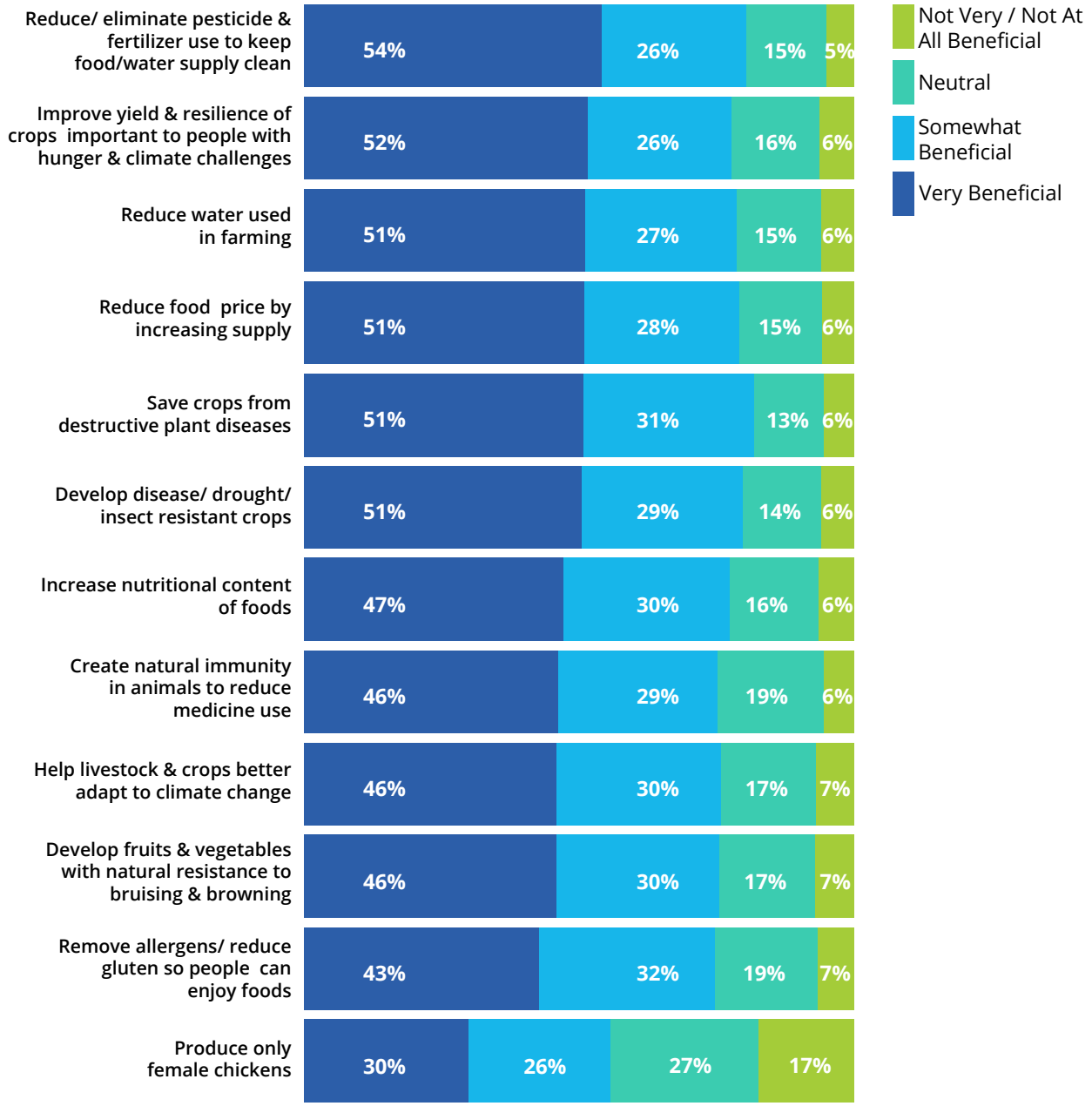


Agricultural Applications

Regarding agricultural applications of gene editing, people are most supportive of its use in:

- Improving yield and resilience of crops of crops that are important to people with hunger and climate change challenges
- Reducing/eliminating pesticide and fertilizer use to keep the food and water supply clean
- Lowering food prices by increasing supplies
- Developing crops that resist disease, insect pests and drought
- Reducing water use

SENTIMENT TOWARDS BENEFITS OF GENE EDITING IN AGRICULTURE

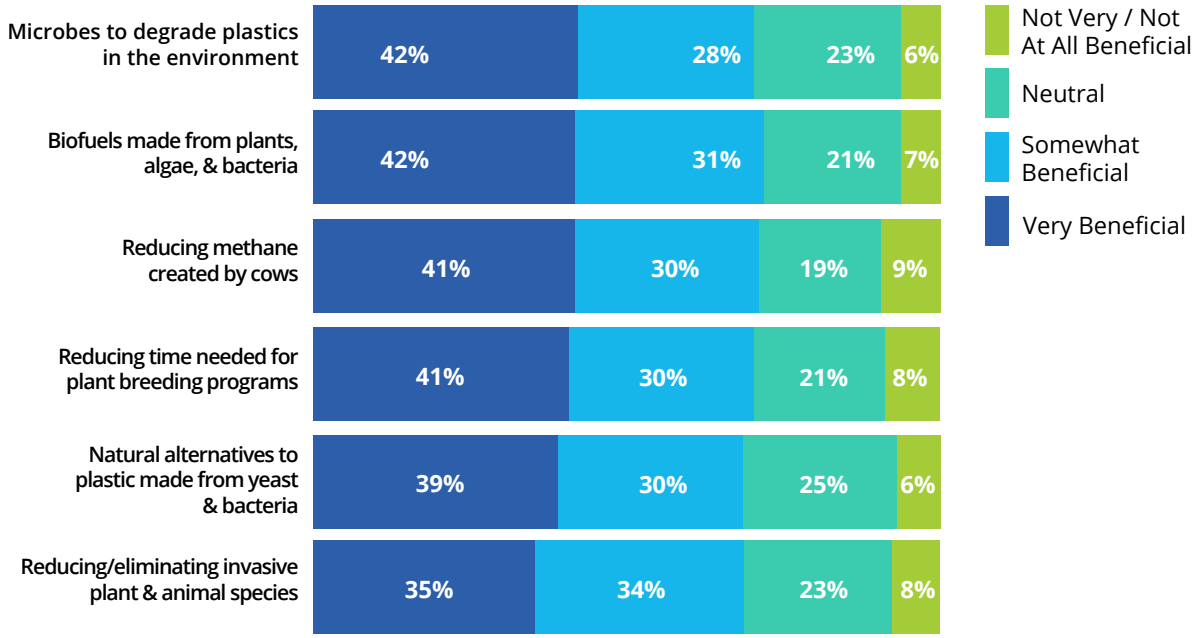


Environmental Applications

Regarding environmental applications of gene editing, people are most supportive of its use in:

- Creating biofuels that are better for the environment and can reduce the need to burn fossil fuels or import fuels from other countries.
- Developing microbes that can degrade existing plastics in our environment.
- Reducing the time needed to breed new plant varieties

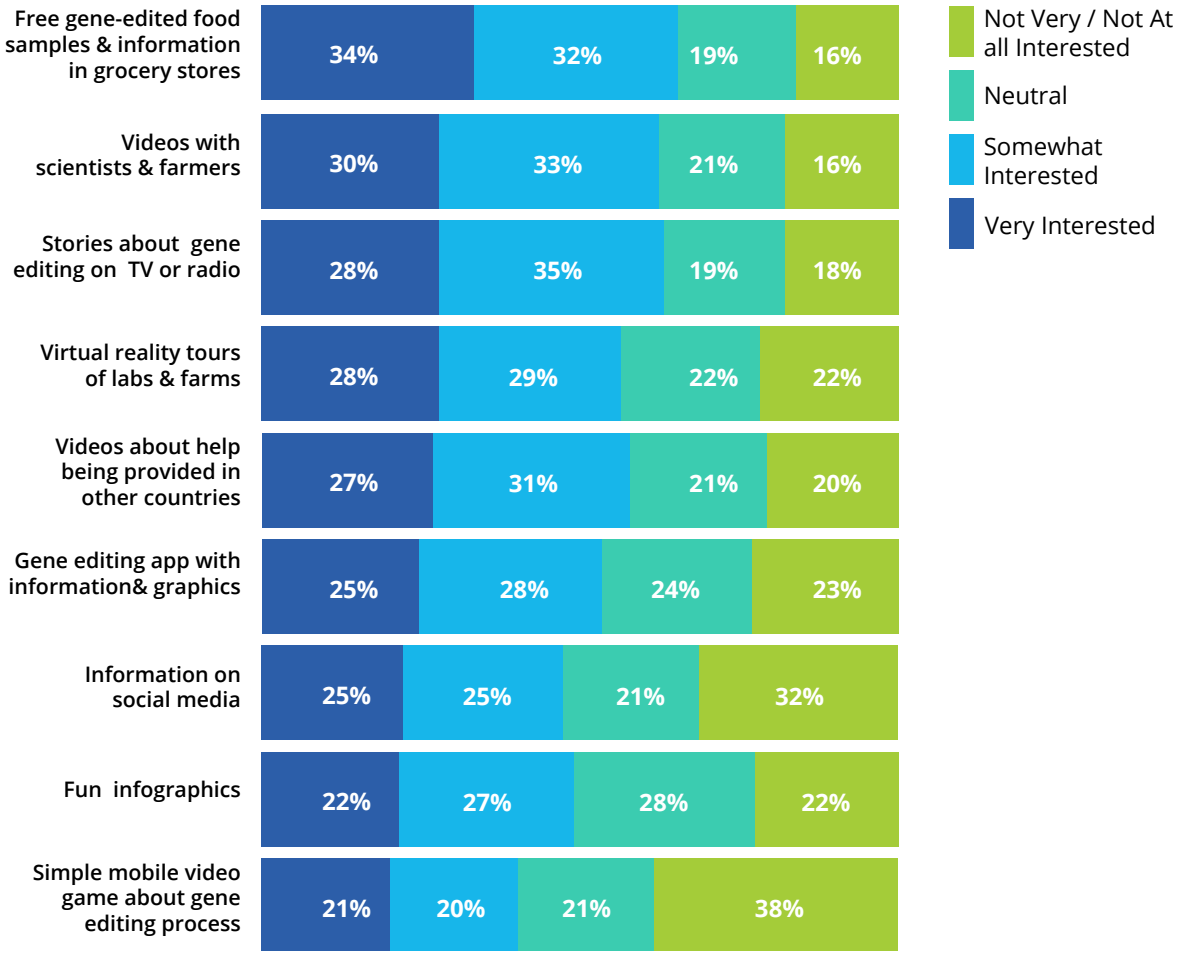
Overall/Primary Sentiment Toward Gene Editing Applications



Questions and Messengers

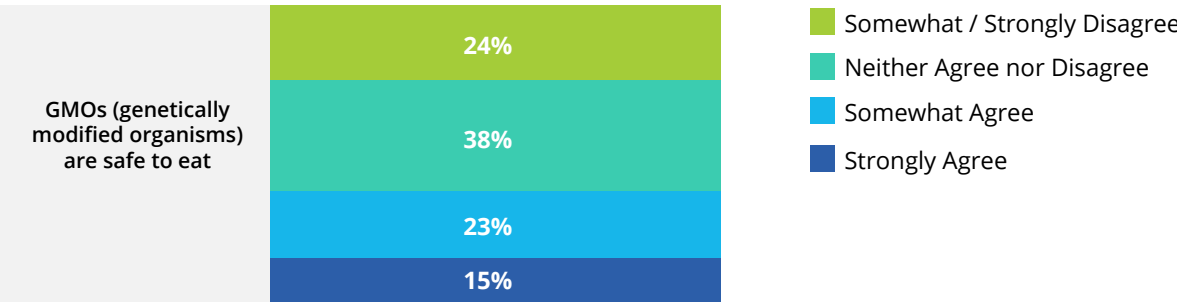
People would like more information about the safety of gene editing (Is it safe for consumption? What sort of testing and regulations are in place?). They would also like to see a public education campaign (product identification/labeling, discussion of possible downsides). There is interest in getting more information about gene editing through videos, TV and radio where they can watch and/or listen to stories from scientists and farmers who have expertise and experience with gene editing

Interest in Methods for Sharing Gene Editing Information



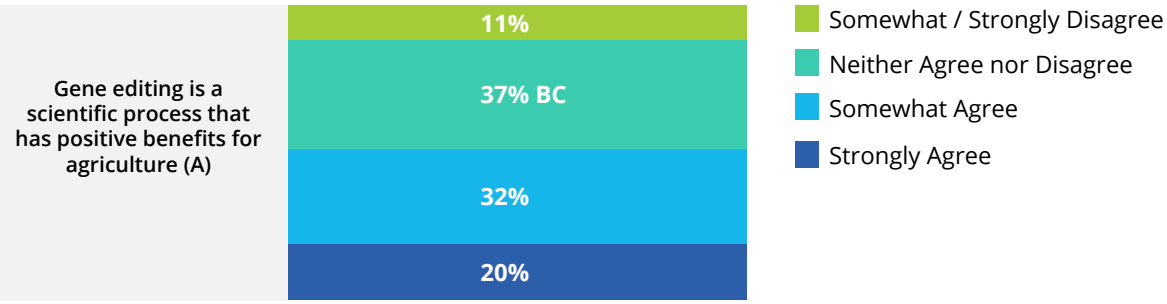
Gene editing and GMOs

People express more hesitation regarding GMOs, with nearly two-thirds questioning the safety of eating GMO foods.



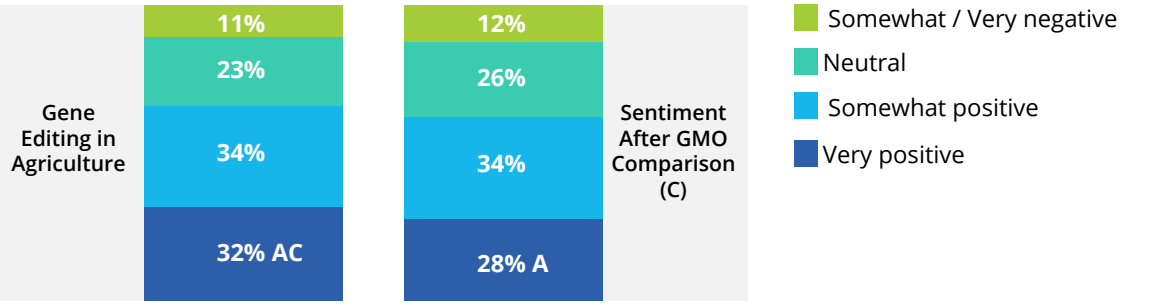
Briefly explaining the differences between gene editing and GMOs slightly decreases the number of people feeling very positive about gene editing, though many want to learn more about the differences.

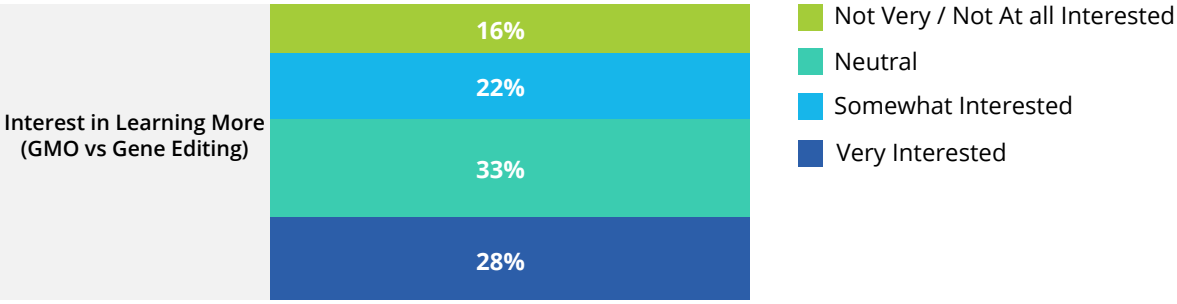
INITIAL GENE EDITING SENTIMENT



INTRODUCTORY SENTIMENT TOWARD GENE EDITING

GENE EDITING VS GMO SENTIMENT





Explaining possible benefits and applications for gene editing increases positive sentiment and decreases those who feel negative.

Demographics

People who are **positive** about gene editing are:

- More likely to consume media related to science and technology daily and via all media sources, especially traditional media and scientific journals or websites.
- More likely to be educated, with higher incomes, live in a city, have children in the household, and be male.
- More likely to vote for Democratic candidates.

People who are **resistant** to gene editing are:

- More likely to never consume media related to science and technology.
- More likely to be less educated, have lower incomes, live in rural areas, and be female.
- More likely to vote for Republican candidates

People who are **neutral** about gene editing are:

- More likely to infrequently or never consume media related to science and technology.
- More likely to be less educated, not have children, have lower incomes, live in the Northeast, and be female.
- Be less likely to plan to vote in the next election or be uncommitted or unsure what party's candidates they plan to vote for.

Frequency of Science / Technical Innovation Media Consumption	**Total** n = 1012	**Very positive** n = 357 B	**Somewhat positive** n = 359 C	**Neutral** n=219 D	**Negative** n=77 E
Every day	9%	**18% CDE**	4%	3%	3%
Every week	21%	**25% DE**	**24% DE**	14%	6%
A few times a month	26%	**28% D**	**28% D**	20%	18%
Once a month or less often	25%	19%	**27% B**	**29% B**	27%
Never	20%	9%	**16% B**	**34% BC**	**45% BC**

Media Consumption Medium	**Total** n=810	**Very positive** n=324 B	**Somewhat positive** n=300 C	**Neutral** n=144 D	**Negative** n=42* E
Traditional media (TV, Newspapers, Radio)	52%	**56% DE**	**54% E**	**46% E**	24%
YouTube	20%	**27% CD**	17%	11%	**26% D**
Social Media	33%	**39% CD**	31%	28%	26%
Scientific journals or websites	47%	**53% DE**	**47% E**	38%	29%
Alternative media (Blogs, Podcasts, Streaming services)	30%	**35% DE**	29%	22%	17%
Other	3%	3%	2%	4%	7%

	TOTAL n=1012	VERY POSITIVE n=357 B	SOMEWHAT POSITIVE n=359 C	NEUTRAL N=219 D	NEGATIVE n=77 E
Age					
18-24 years	7%	8%	7%	8%	4%
25-34 years	15%	16%	15%	14%	9%
35-44 years	15%	18%	15%	12%	13%
45-54 years	19%	18%	18%	20%	25%
55-64 years	20%	19%	21%	20%	**30% B**
65+ years	24%	21%	25%	27%	19%
Education					
Some high school	4%	3%	3%	**6% BC**	5%
High school graduate	21%	21%	17%	**27% C**	23%
Some college	21%	20%	19%	24%	21%
Associates degree or technical degree	14%	13%	14%	15%	16%
College degree	27%	**26%**	**31% D**	21%	25%
Graduate degree	14%	**17% D**	**16% D**	6%	10%
Children in Household					
No Kids	72%	**65%**	**75% B**	79% B	73%
Kids	28%	**35% CD**	**25%**	21%	27%
Income					
Less than $24,999	18%	**13%**	**17%**	28% BC	23% B
$25,000 to $49,999	27%	**27%**	**26%**	26%	29%
$50,000 to $74,999	20%	**20%**	**19%**	20%	22%
$75,000 to $99,999	13%	**15%**	**14%**	11%	13%
$100,000 to $149,999	12%	**15% D**	**13%**	8%	9%
$150,000 to $199,999	5%	**6%**	**5%**	3%	3%
$200,000 or more	3%	**4%**	**4%**	3%	0%
Prefer not to answer	2%	**1%**	**3%**	2%	1%
GENDER					
Female	56%	52%	53%	**64% BC**	**65% B**
Male	43%	**47% DE**	**47% DE**	36%	34%
Non-Binary/Other	0%	1%	0%	0%	0%
LOCATION					
Region					
West	19%	22%	18%	18%	14%
Southwest	13%	14%	13%	11%	17%
Southeast	23%	22%	23%	21%	31%
Northeast	22%	18%	23%	27% B	17%
Midwest	23%	24%	23%	22%	21%
Home Area					
City	30%	32% E	30% E	29%	18%
Suburb	43%	44%	43%	41%	48%
Small town	12%	10%	13%	11%	10%
Rural	16%	14%	14%	18%	**23% BC**

Voting Intentions	TOTAL n=1012	VERY POSITIVE n=357 B	SOMEWHAT POSITIVE n=359 C	NEUTRAL n=219 D	NEGATIVE n=77 E
Plan to vote in 2022 local/statewide elections					
Yes	77%	**84% CD**	**78% D**	64%	**77% D**
No	12%	6%	**11% B**	**24% BCE**	12%
Not sure yet	11%	10%	11%	12%	12%
How will you vote in next election					
I will vote only for Democratic candidates	24%	**30% CDE**	22%	18%	18%
I probably will vote mostly for Democratic candidates	16%	14%	**20% E**	14%	8%
I will vote only for Republican candidates	18%	15%	18%	18%	**27% B**
I probably will vote mostly for Republican candidates	13%	**14% D**	13%	9%	16%
I am not committed until I know more about the candidates' positions	23%	22%	23%	26%	22%
I will vote for other political party candidates	2%	2%	1%	2%	4%
Other	6%	3%	4%	**13% BC**	5%

More information about the study collaborators

The Alliance for Science
btiscience.org/allianceforscience

The Foundation for Food & Agriculture Research (FFAR)
foundationfar.org

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