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# The New Food Fights: U.S. Public Divides Over Food Science

*Differing views on benefits and risks of organic foods, GMOs as Americans report higher priority for healthy eating*

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## The New Food Fights: U.S. Public Divides Over Food Science

*Differing views on benefits and risks of organic foods, GMOs as Americans report higher priority for healthy eating*

Food has become a flashpoint in American culture and politics. In the past generation, Americans have witnessed the introduction of genetically modified crops, the rise of the organic food industry, increasing concerns about obesity, growing awareness to food allergies and other health concerns linked with what people eat, an expanding volume of best-selling books and publications about food and the proliferation of premier chefs as superstars in popular culture.

There has been a pronounced shift in Americans' eating habits over the past 20 years with far-reaching implications for how food is created, prepared and consumed. Moreover, the way Americans eat has become a source of potential social, economic and political friction as people follow personal preferences reflecting their beliefs about how foods connect with their health and ailments, according to a new survey by Pew Research Center.

In a way, these choices reflect personalized "ideologies" that shape how people think about and consume food. They are not all-encompassing world views, but they inform key behaviors and attitudes around life's staples.

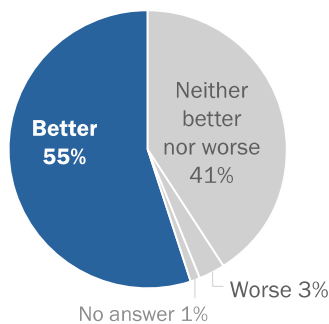
The new food divides are encapsulated by how people assess the health effects of two kinds of food: organic and genetically modified (GM) foods.

The new survey finds that 55% of Americans believe organically grown produce is healthier than conventionally grown varieties, while 41% say there is no difference between organic and conventionally grown produce and 3% say that conventionally grown produce is better. Four-in-ten

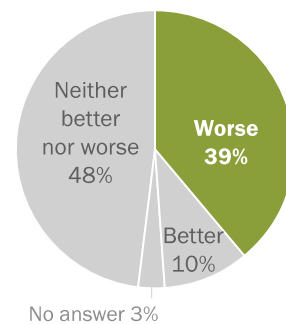
### Most Americans see health benefits in organics, a sizable minority sees health risks in GM foods

*% of U.S. adults who say the following*

**Organic produce** is \_\_ for health than conventionally grown produce



**GM foods** are \_\_ for health than non-GM foods



Note: Beliefs about effects of genetically modified (GM) foods includes those who lean toward each response.

Source: Survey conducted May 10-June 6, 2016.

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Americans (40%) say that most (6%) or some (34%) of the foods they eat are organic. Fully three-quarters of these Americans (75%) are convinced that organic foods are healthier than conventionally grown foods.

At the same time, there is a sizable minority – 39% – of Americans who consider genetically modified foods worse for a person’s health than other foods. This compares with 48% of adults who say GM foods are no different from non-GM foods and 10% who say GM foods are better for health.

### **People’s divisions are linked to their interests in food issues but not tied to politics and partisanship**

The divides over food do not fall along familiar political fault lines. Nor do they strongly tie to other common divisions such as education, income, geography or having minor children. Rather, they tie to individual concerns and philosophies about the relationship between food and well-being. One indicator of such philosophies is the degree of concern people have about the issue of GM foods. The minority of U.S. adults who care deeply about the issue of GM foods (16%) are much more likely than those with less concern about this issue to consider GM foods worse for health (75% vs. 17% of those with no or not too much concern about GM foods); they are also much more likely to consider organic produce healthier: 81% compared with 35% of those with no or not too much concern about GM foods.

The second indicator is how focused people are on eating healthy foods. The 18% of Americans who are particularly focused on healthy and nutritious eating are especially likely to consider organic produce healthier than conventionally grown produce. They follow news about GM foods more closely, though their views about the health effects of GM foods are similar to those with less focus on eating healthy and nutritious foods.

The people in both of these groups eat and shop differently than other Americans; they pay attention to food-related matters in varying ways; they have different views about food-health issues; and noteworthy shares have food allergies or other health problems with certain foods.

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**16%** *of U.S. adults say they care "a great deal about the issue of genetically modified foods"*

**18%** *of U.S. adults say the statement "My main focus is on eating healthy and nutritious" describes them very well*

Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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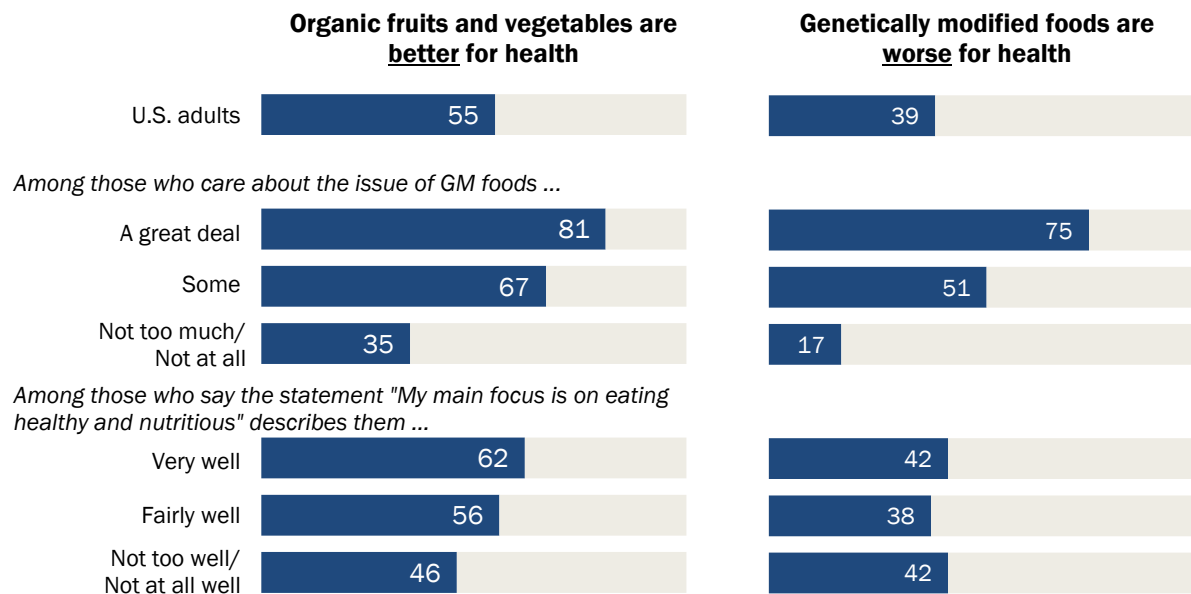
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Their views of scientists and science research findings are often in sync with others, but people with a deep concern about the issue of GM foods are particularly skeptical of information from food industry leaders about the health effects of GM foods and see more industry influence on science research findings than do other Americans.

## Mirroring perspectives on the health effects of organic food and GM foods

% of U.S. adults who say ...



Note: Beliefs about effects of GM foods includes those who lean toward each response. Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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There are also divides by age on views of food issues with younger generations more inclined than older ones to see health benefits in organic produce and health risks in GM foods. But, perhaps surprisingly, women and men tend to hold broadly similar views about organic foods and differences between genders in beliefs about the effects of GM foods are modest. However, women tend to care more deeply about the issue of GM foods than do men, a concern that is quite consequential for people's views and behaviors about food. Income differences come into play in purchasing behaviors, but there are no differences between people with high and low family incomes in terms of beliefs about the healthfulness of organic or GM foods.

These are some of the key findings from a new Pew Research Center survey conducted from May 10 to June 6, 2016, with a nationally representative survey of 1,480 adults. This is the second in a series of reports that details public views on science and scientists in areas that connect with Americans' daily lives.

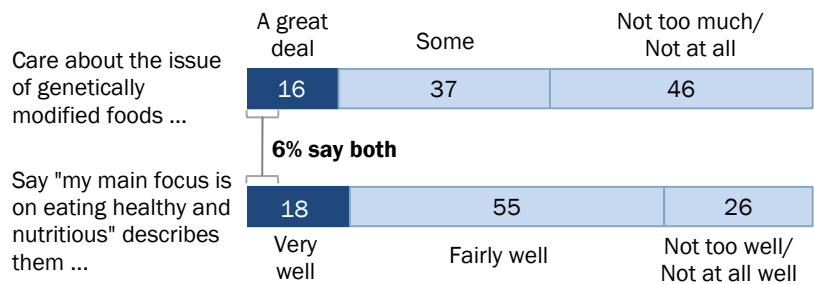
## Personal food philosophies underlie people's thinking and choices about food

There are pronounced differences in people's views about organic and GM foods that tie to their underlying outlook about food. One is the degree of concern people have about the issue of GM foods and another is the degree people are focused on eating healthy and nutritious foods. People who care deeply about the issue of GM foods stand out in their concerns about the healthfulness of these foods and the impact GM crops have on public health and the environment, as well as in their general food buying and eating practices. Similarly, people who are focused on eating healthy and nutritious foods stand apart from other Americans in how strongly they think eating is tied to a long and healthy life and in eating "what they should" most days; in their beliefs about the nutritional value of organic food; and in their attention to nutrition and ingredient labels.

Interestingly, those who are concerned about the issue of GM foods and those who are nutrition focused are largely different groups of Americans: Just 6% of adults both care a great deal about GM food issues and say their own eating style is focused on being healthy and nutritious. But their eating habits, their views about organic foods, their views about GM foods and the importance of foods in health are often at odds with those of other Americans.

### Two largely distinct groups of Americans are focused on food issues

*% of U.S. adults who ...*



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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People's differences in opinions that are tied to their food "ideologies" are not as wide or consistent by comparison with the highly [politically polarized views on climate change](#) and some other science-related issues. And opinion differences on food issues are conspicuously not political. For example, roughly equal shares of Republicans (39%) and Democrats (40%) feel that GM foods are

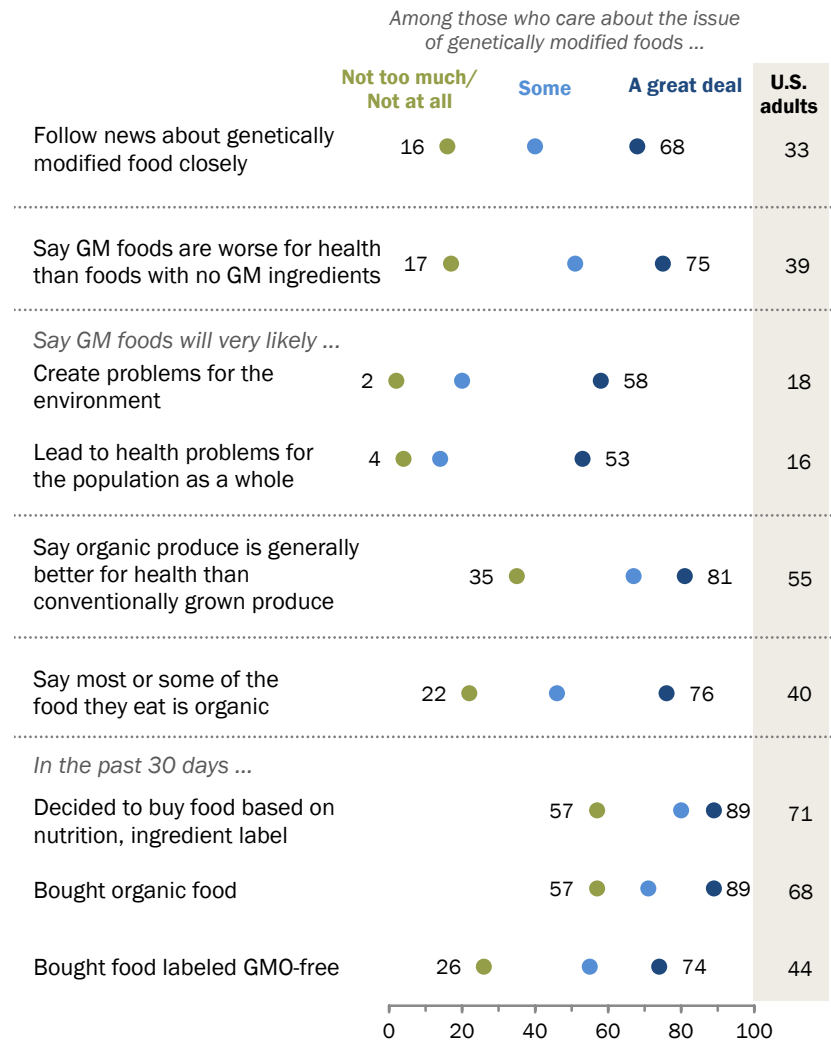
worse for people's health. And, half of Republicans (50%) and 60% of Democrats have positive views about the health benefits of organic foods.<sup>1</sup>

The survey shows that people's concerns about the GM foods issue are strongly related to their beliefs about GM foods and the likely effects of these foods on society. Fully three-quarters (75%) of those who are deeply concerned about this issue say that GM foods are worse for one's health than other foods and many more in this group believe that these foods will bring environmental and health problems for society. But this level of concern about GM foods also ties to ways people assess the world of food, their purchases at the grocery store and what they eat at home. Some of the major distinctions that highlight the differences among them:

- Fully 81% of those who care a great deal about the issue of GM foods think organic produce is

## Views and behaviors about a wide range of food topics in U.S. are linked with concern about GM foods issue

% of U.S. adults who ...



Note: Beliefs about effects of GM foods includes those who lean toward that response. Responses for following news about GM foods "very" or "somewhat" closely are combined. Respondents who gave other responses or did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016.

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<sup>1</sup> Republicans and Democrats include independents and others who "lean" toward the parties.



healthier than other conventionally grown foods, compared with 35% of those who are not particularly concerned about the issue of GM foods.

- Those deeply concerned about the GM foods issue eat more organic foods; 76% say most or some of what they eat is organic. By contrast, fully 75% of those with little concern about the issue of GM foods say they do *not* eat organic foods or not too much of what they eat is organic.
- People deeply concerned about the issue of GM foods also take that focus to the grocery aisles. The vast majority of this group (89%) has purchased foods based on the nutrition and ingredient labels and 82% have done so several times in the past month; 89% have bought organic foods and 74% have bought foods labeled GMO-free. Fewer of those with less concern on the issue of GM foods have done the same (57% of those with not too much or no concern about the issue of GM foods have decided what to buy based on nutrition and ingredient labels, 57% have bought organic foods in the past month and just 26% have bought foods labeled GMO-free.)
- People with deep concern about the issue of GM foods are especially convinced that healthy eating habits lead the way to a long and healthy life; 87% of those who care a great deal about the GM foods issue say healthy eating is very important for a person's chances of a long and healthy life, compared with 68% among those who do not care about the GM foods issue at all or not too much.
- More people with deep concern about the issue of GM foods are more likely to follow vegan or vegetarian diets, at least mostly – 21% do, compared with 6% of those who do not care too much or at all about the issue of GM foods.

Women are more likely than men to care deeply about the issue of GM foods (20% vs. 12%). But people with deep personal concern about the issue of GM foods are diverse in their races, ethnicities, ages, education and family incomes. There are some modest differences by age, education and income with more of those ages 65 and older, those with lower family incomes (under \$30,000 annually) and those with less education (high school degrees or less) saying they do not care at all or not too much about the issue of GM foods. Some 16% of Republicans and the same share of Democrats (16%) say they care a great deal about this issue.

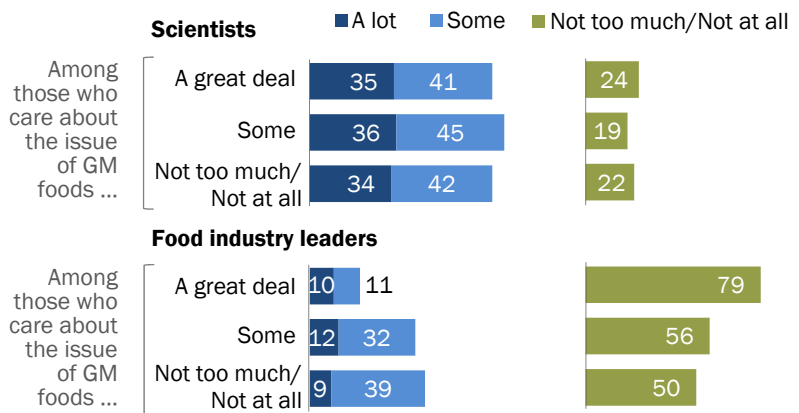
*People's views about scientists connected with GM foods:* Americans with deep concern about the issue of GM foods hold mixed views about scientists connected with GM foods. Those deeply concerned about this issue say that scientists understand the health effects of GM foods very well (32%). And, 35% of this group says they trust scientists a lot to provide full and accurate information about the health effects of eating GM foods. But in these areas their views look similar to Americans with less concern about the issue of GM foods.

At the same time, this group is more skeptical of food industry leaders and the potential influences from industry interests on scientific research findings.

Just 21% of those deeply concerned about the issue of GM foods trust food industry leaders at least some to provide full and accurate information about the effects of GM foods and 79% do not trust information from food industry leaders too much (39%) or at all (40%). By contrast, 48% of those who do not care about the issue of GM foods at all or not too much say they trust information from food industry leaders at least some.

### Trust in information from food industry leaders is lower for those deeply concerned about issue of GM foods

*% of U.S. adults who say they trust each of these groups \_\_\_ to give full and accurate information on the health effects of genetically modified foods*



Note: Respondents giving no answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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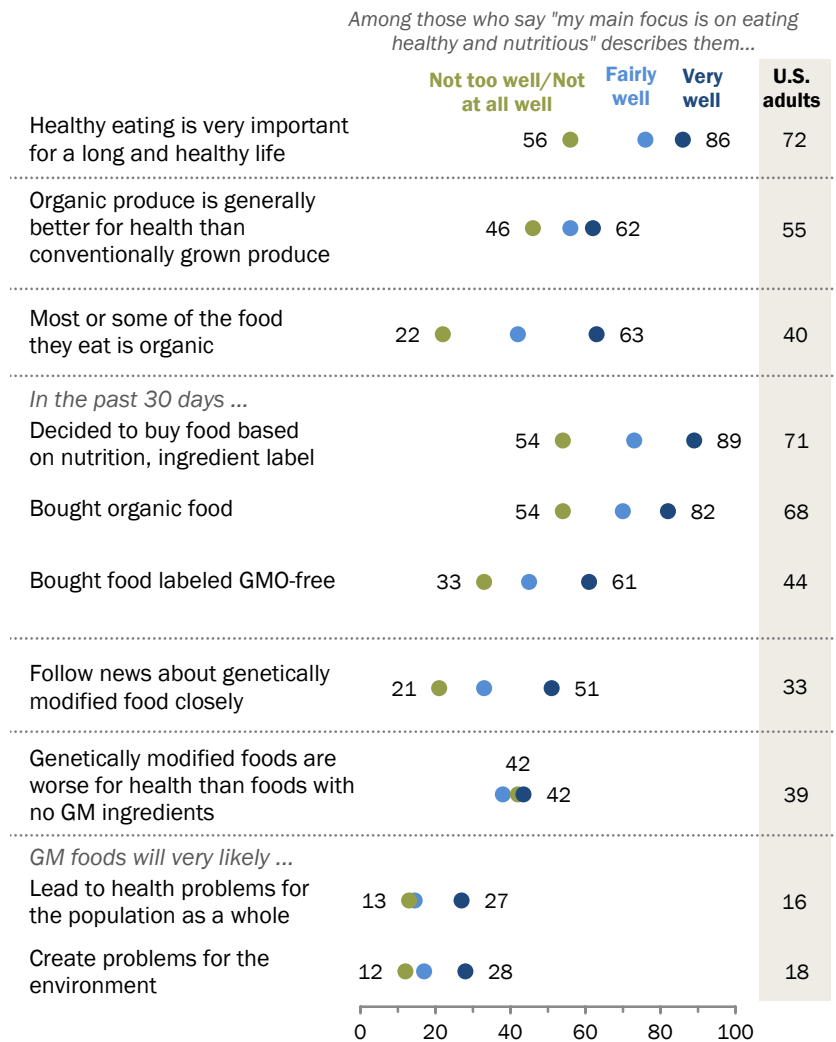
And, half of those who care deeply about the issue of GM foods (50%) say that scientific findings about GM foods are influenced by the researchers' desires to help their industries "most of the time." In contrast, 22% of those with little personal concern about the issue of GM foods say the same.

People’s “ideologies” when it comes to food are multifaceted. A second indicator of people’s outlooks about food is their degree of focus on healthy and nutritious eating, which also has far-ranging implications for how they see the world of food, their food purchases and their eating practices. Some of the major distinctions that highlight the differences among them:

- Some 86% of those who are focused on eating healthy and nutritious food say this practice is very important for a person’s chances of leading a long and healthy life, compared with 56% of those who are not particularly focused on healthy eating. People focused on eating healthy are more inclined than other Americans to say the types of foods Americans eat are a bigger problem today than how much people eat (34% compared with 21% of those with little focus on healthy eating.)

### Americans’ views and choices about food are strongly linked with their focus on healthy and nutritious eating

% of U.S. adults



Note: Beliefs about effects of GM foods includes those who lean toward that response. Responses for following news about GM foods “very” or “somewhat” closely are combined. Respondents who gave other responses or did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016. “The New Food Fights: U.S. Public Divides Over Food Science”

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- A majority of those focused on eating healthy foods (62%) believe that organic produce is healthier than conventionally grown produce, compared with 46% for whom healthy eating is not a priority. And a similar share (63%) says most or some of what they eat is organic. In contrast, just 22% of those with little focus on eating healthy say at least some of what they eat is organic.
- People who are focused on eating healthy and nutritious food generally think they reach their goals; seven-in-ten (70%) of this group say they eat about what they should most days, compared to just 13% of those who place little or no priority on healthy eating.
- Americans focused on healthy and nutritious eating are more likely to follow vegan or vegetarian diets – 22% say they are at least mostly vegan/vegetarian, compared with 3% of those with little or no priority on healthy eating. Those focused on healthy and nutritious eating are also more likely to report they have allergic reactions to food: 26% have at least a mild food allergy, compared with 15% among those with little or no focus on healthy eating.

While men and women are about equally likely to say they are focused on healthy and nutritious eating (16% vs. 20%), more men (31%) than women (22%) say that a focus on healthy eating does not describe them too well or at all. Younger adults, ages 18 to 29, are a bit less likely than older age groups to be at least somewhat focused on healthy and nutritious eating. But there are no differences among education, family income or party affiliation groups in terms of the share focused on healthy eating.

*Americans' focus on healthy eating and their views about scientists and research on GM foods:* People focused on eating healthy and nutritious foods follow news about GM foods more closely than other Americans: 51% follow at least somewhat closely, compared with 21% of those with little or no priority on healthy eating. But, perhaps surprisingly, their views about GM foods are similar to or only modestly different from those with less focus on healthy and nutritious eating. People's views about scientists and research findings related to GM foods are also only moderately different depending on one's orientation toward healthy and nutritious eating. To the extent these groups differ in their views, those with a focus on eating healthy and nutritious foods tend to be a bit more convinced that scientists understand the health effects of GM foods very well, to trust scientists a lot to provide full and accurate information about GM foods and to see science research findings as rooted in the best available evidence most of the time.

*The impact of food restrictions and dietary accommodations on social gatherings:* While there are wide differences in views and eating behaviors depending on people's concerns and orientations toward these food issues, it's not clear how much friction over these issues occurs among friends and family. A minority (31%) of Americans say it bothers them at least some when guests ask for special food options at social gatherings they are hosting. Americans' feelings about

guests' requests for dietary accommodations are about the same regardless of people's focus on eating healthy or their concern about GM foods.

A sizable minority of U.S. adults (37%) say that hosts should always ask guests ahead of time about food restrictions, however. This view is more common among those with deep concern about the issue of GM foods (49% say hosts should always do this compared with 32% among those with little concern about the GM foods issue.)

### The public believes two controllable factors are critical for a long and healthy life: healthy eating and exercise

Fully 54% of Americans say that compared with 20 years ago, people in the U.S. pay more attention to eating healthy foods today. Smaller shares say people pay less attention (26%) or about the same amount of attention (19%) to eating healthy today.

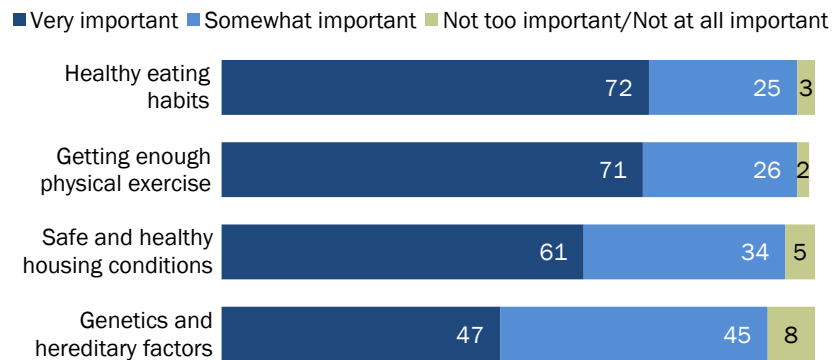
Most Americans consider their future health within their grasp – if only they eat and exercise adequately. Roughly seven-in-ten adults say that healthy eating habits (72%) and getting enough physical exercise (71%) are very important for improving a person's chances of living a long and healthy life.

Yet people's behavior does not appear to match that ideal. A 58% majority of Americans says most days they should probably eat healthier, while some 41% say they eat about

what they should most days. But among the minority of Americans who are focused on eating healthy and nutritious foods, fully 70% say they eat about what they should most days, compared with just 13% of those with little focus on healthy and nutritious eating.

### Majority of Americans say healthy eating, physical exercise are key to a long and healthy life

*% of U.S. adults who say each of the following is \_\_\_ when it comes to improving a person's chances of a long and healthy life*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Food allergies and other health issues related to food tie with people's food philosophies

A notable share of those who focus on food issues are people who have struggled with food. About one-in-seven (15%) U.S. adults say they have mild, moderate or severe allergies to one or more foods. Another 17% of adults have intolerances to one or more foods. Food allergies factor into people's eating philosophies; some 26% of those focused on eating healthy and nutritious food have at least mild food allergies.

## About one-in-ten Americans follow vegan or vegetarian diets at least mostly

Some 3% of Americans say they follow a strict vegan or vegetarian diet and another 6% say they are mostly vegan or vegetarian. The share of people eating at least mostly vegan/vegetarian diets is considerably higher among those focused on eating healthy and nutritious foods (22% compared with 3% among those not at all or not too focused on this). Similarly, 21% of those who care a great deal about the issue of GM foods follow diets that are at least mostly vegan or vegetarian, compared with 6% of those who do not care about this issue at all or not too much.

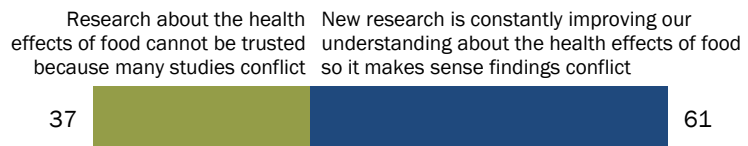
## Food news 'whiplash' does not have great impact on most Americans' overall views

Observers have worried that the back and forth of conflicting reports about the health effects of food and drink in the media confuses the public, or worse, fosters distrust in health and nutrition science.<sup>2</sup> The new Pew Research Center survey finds that a majority of Americans sense the proliferation of conflicting news but are, on the whole, unfazed. But people with less knowledge about science are closely divided over such studies.

Fully two-thirds (66%) of the public says they hear or read news stories about the health effects of what people eat and drink every day (23%) or a few times a week (43%). And many Americans perceive such studies as contradicting prior news reports at least some of the time. Most Americans say they hear or read news stories about the health effects of foods which conflict with

## Most Americans say conflicting news stories about the health effects of food reflects improved understanding

*% of U.S. adults who say ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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<sup>2</sup> See Gina Kolata. "We're So Confused: The Problems with Food and Exercise Studies," New York Times, Aug. 11, 2016; Timothy Caulfield, 2012, [The Cure for Everything: Untangling Twisted Messages About Health, Fitness and Happiness](#). Boston, MA: Beacon Press.

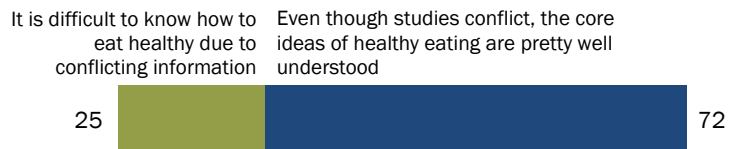
earlier studies some of the time (51%) or all the time (21%).

A majority of the American public (61%) says “new research is constantly improving our understanding about the health effects of what people eat and drink, so it makes sense that these findings conflict with prior studies.” By comparison, 37% say “research about the health effects of what people eat and drink cannot really be trusted because so many studies conflict with each other.” Most people with high (74%) or medium (65%) levels of science knowledge, based on a nine-item index, say the conflicting stories are understandable. But people with low science knowledge are closely divided between these two positions: 46% say this is understandable given constant improvements in research understanding and 50% say it suggests that such research cannot really be trusted.<sup>3</sup>

Fully 72% of U.S. adults say even though new studies sometimes conflict with prior findings “the core ideas about how to eat healthy are pretty well understood.” Majorities of those with more and less focus on eating healthy share this viewpoint as do majorities of those with more and less concern about the issue of GM foods.

### Despite conflicting reports, a majority of Americans say they understand the core ideas of eating healthy

*% of U.S. adults who say ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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But, here too, people with low science knowledge are closely divided. Half of those with low science knowledge say the core ideas of healthy eating are pretty well understood (50%) and a nearly equal share (47%) say it is difficult to know how to eat healthy due to conflicting information. By contrast, just 8% of those with high science knowledge say it is difficult to know how to eat healthy and 92% say the core ideas of healthy eating are pretty well understood.

<sup>3</sup> For more on the science knowledge index see the [topline](#) and the Methodology section of the related report, “The Politics of Climate.”

**There is considerable skepticism about scientific understanding, consensus and influences on research about genetically modified foods**

While a [2014 Pew Research Center survey](#) found most Americans (62%) see benefits of scientific advances on the quality of food, in general people’s views of scientists connected with genetically modified foods in this new survey are largely skeptical, or at best, tepid.

Just two-in-ten (19%) Americans say scientists understand the health effects of GM foods “very well.” Some 44% of Americans say scientists understand this fairly well and 35% say scientists do not understand the health effects of genetic modification at all or not too well.

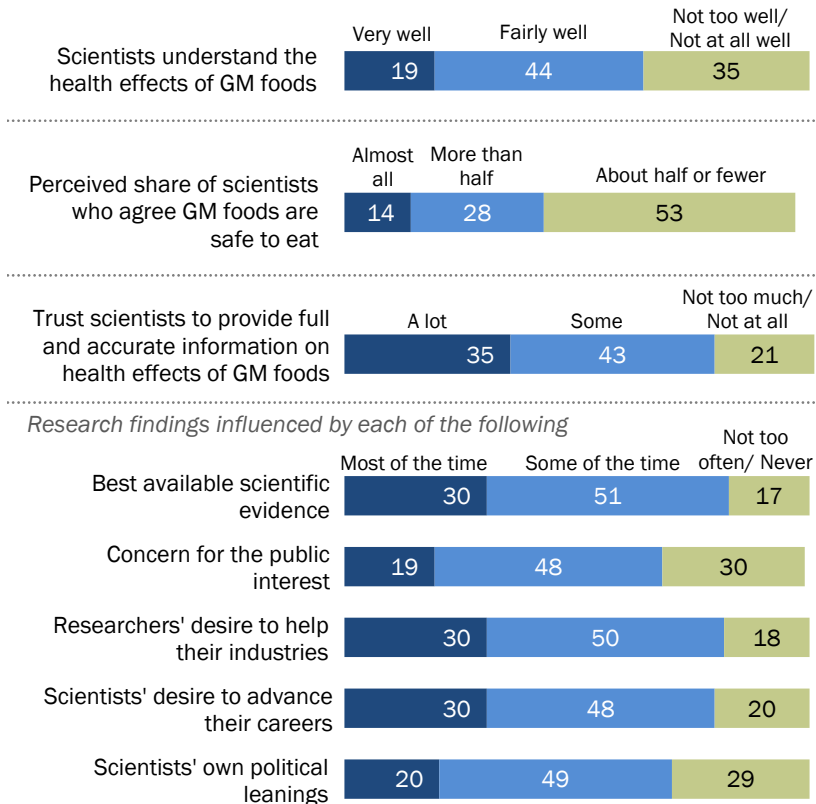
A [2016 report from the National Academies of Sciences, Engineering and Medicine](#) highlighted consensus among scientific experts that GM foods were

safe. Most Americans perceive considerable disagreement in the scientific community, however. Only a minority of Americans says that almost all (14%) or more than half (28%) of scientists agree that GM foods are safe to eat.

Public trust in information about the health risks and benefits of GM foods from scientists is higher than it is for several other groups: food industry leaders, the news media and elected officials. But only a minority of the public (35%) says they trust scientists a lot to give full and

**Americans have limited trust in scientists connected with genetically modified foods**

*% of U.S. adults*



Note: Respondents who did not give an answer are not shown.  
 Source: Survey conducted May 10-June 6, 2016.  
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accurate information about the health effects of GM foods, while 43% trust scientists “some.” Trust in information from small farm owners is similar, with 29% saying they trust small farm owners a lot and 49% saying they trust small farm owners some to give full and accurate information on the health effects of GM foods.

When asked specifically about the factors that might shape scientists’ research on food, people give mixed answers. Three-in-ten (30%) Americans say the best available evidence influences scientists’ research on the effects of GM foods most of the time. About half of the public (51%) says this occurs some of the time, while 17% say this does not occur or not too often occurs.

At the same time, three-in-ten Americans (30%) say that scientists’ desire to help connected industries influences the research findings most of the time, half (50%) of Americans say this occurs some of the time.

Views among people with a deep concern about the issue of GM foods are largely similar to those of other Americans in their perceptions of scientists’ understanding about genetic modification. However, this group of issue-concerned Americans stands out for its stronger skepticism that research findings about GM foods are influenced by researchers’ desires to help the industries they work with or work for and by their lower trust in information from food industry leaders to give full and accurate information about the effects of GM foods.

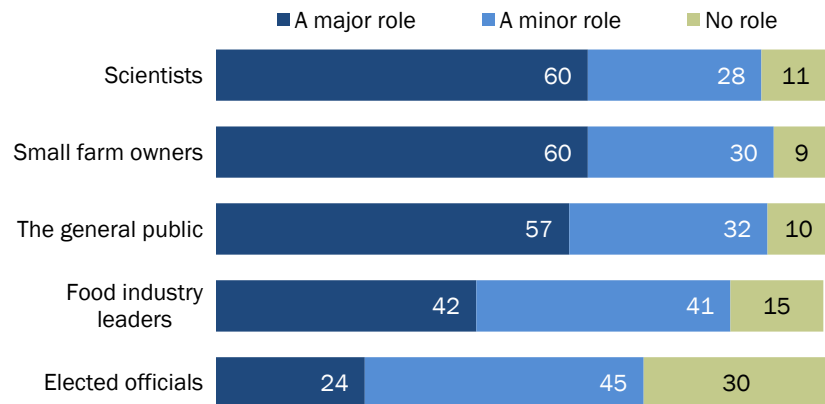
### **Most Americans think scientists should help make food policy**

Despite mixed assessments of scientists working on genetic modification, six-in-ten U.S. adults (60%) say scientists should have a major role in policy issues related to GM foods and 28% say they should have a minor role. Similar shares of Americans say that small farm owners and the general public should have a major role in GM food policy. A smaller share of Americans says that food industry leaders (42%) or elected officials (24%) should have a major role in policy decisions about GM foods.

People who are deeply concerned about the issue of GM foods give higher priority to the general public in policy decisions about GM foods. Fully 78% among this group say the general public should have a major role in such policy decisions. A smaller majority says scientists should have a major role in GM food policy (66%). People who are not concerned or not too concerned about the issue of GM foods give a comparatively higher priority to scientists in influencing policy decisions.

### Most Americans say scientists, small farm owners and general public should play major role in GM food policy

*% of U.S. adults who say each of these groups should have \_\_\_\_ in making decisions about policy issues related to genetically modified foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"The New Food Fights: U.S. Public Divides Over Food Science"

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### Americans' with high science knowledge are more inclined to think well of scientists

In contrast to [public views of climate scientists](#), people's views about scientists connected with GM foods are similar across party affiliation and ideology groups. A more important differentiator is knowledge: Americans who have higher levels of science understanding tend to see scientists and their research in a more positive light. Americans with high science knowledge on a nine-item index are more trusting of scientists to give full and accurate information about the health effects of GM foods: 51% of those high in science knowledge trust information from scientists a lot, compared with 38% among those with medium and 18% among those with low science knowledge. Those high in science knowledge are also more inclined than those with low or medium science knowledge to say the best evidence influences research findings about GM foods most of the time. Half (50%) of those with high science knowledge say this occurs most of the time, compared with 30% among those with medium science knowledge and 14% among those with low science knowledge.

More people higher in science knowledge perceive consensus among scientists that GM foods are safe to eat. Still, only two-in-ten (20%) of this group rate scientists as understanding very well the health risks and benefits of GM foods. These differences associated with science knowledge are in keeping with findings in the [Science and Engineering Indicators](#) and other research showing a modest positive relationship between science knowledge and general views about science and scientists. Science knowledge is not strongly connected with people's degree of concern about the issue of GM foods or their focus on eating healthy and nutritious foods.

## 1. Public views about Americans' eating habits

The American food scene has undergone considerable change over the past two decades. During this period, the public has seen the introduction of genetically modified crops, the mainstreaming of organic foods into America's supermarkets<sup>4</sup>, and the proliferation of chefs elevated to celebrity status within popular culture.

Over the same period, there has been a marked increase in public health concerns about the growing prevalence of obesity among both children and adults. Perhaps sparked by thinking from people such as Michael Pollan<sup>5</sup>, Mark Bittman<sup>6</sup>, and documentaries such as Morgan Spurlock's "[Super Size Me](#)," Americans thinking about food has shifted dramatically.

Concerns about obesity, food allergies and other health effects of food are fueling a new level of scrutiny of chemicals and additives in foods and contribute to shifting notions about portion size, sugar and fat content.<sup>7</sup> Consumption of sugary sodas has dropped to a 30-year low while sales of bottled and flavored water rose dramatically over the past few decades. Zero-calorie diet sodas long held allure for Americans concerned about their weight, but sales of diet sodas have also dropped, with at least some arguing that the decline has been fueled by growing public concern about ingesting artificial sweeteners and other food additives.<sup>8</sup> America's love affair with fast-food chains is on the wane, with "fast casual" brands that offer convenient options which focus on natural, fresh ingredients gaining favor.<sup>9</sup>

To some degree this is reflected in the emergence of distinct groups that can be identified by their focus on food issues and personal eating habits. New thinking about ways to eat healthy helped launch a number of eating "movements" with proponents arguing that Paleo, anti-inflammatory or vegan diets bring health benefits along with better weight control. Food and the way we eat has become a potential source of social friction as people follow their own ideologies about what to eat and how foods connect with people's ailments.

During this same period, there have been sometimes strident public debates over science-related topics – most prominently on climate change, but also on a host of others including the

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<sup>4</sup> Catherine Greene, Seth J. Wechsler, Aaron Adalja and James Hanson, Feb. 2016. "[Economic Issues in the Coexistence of Organic, Genetically Engineered \(GE\) and non-GE Crops](#)" Economic Research Service, U.S. Department of Agriculture.

<sup>5</sup> Michael Pollan. 2006. "The Omnivore's Dilemma: A Natural History of Four Meals" New York: Penguin Press.

<sup>6</sup> See for example, the opening column for 'The Flexitarian,' Mark Bittman, "[Healthy, Meet Delicious](#)," New York Times, April 23, 2013.

<sup>7</sup> See for example, Hans Taparia and Pamela Koch, "[A Seismic Shift in How People Eat](#)," New York Times, Nov. 6, 2015. Scott Mowbray, "[The Rise of the New Food Culture](#)," The Huffington Post, Dec 10, 2012. Jeff Green and Craig Giammona. "[How Halal Food Became a \\$20 Billion Hit in America](#)," Bloomberg, Sept. 14, 2016.

<sup>8</sup> See Sanger-Katz, Margot. "[The Decline of 'Big Soda](#)," New York Times, Oct. 2, 2015.

<sup>9</sup> See Specter, Michael. "[Freedom from Fries: Can fast food be good for you?](#)" The New Yorker, Nov. 2, 2015.

environmental impacts of fracking and nuclear power, the safety of childhood vaccines and, of course, the safety of genetically modified foods. A previous [Pew Research Center report](#) showed that public attitudes on a wide range of science issues were widely divergent from those of members of the American Association of Advancement of Science (AAAS). In fact, the largest differences between the public and members of the AAAS were beliefs about the safety of eating genetically modified (GM) foods. Nearly nine-in-ten (88%) AAAS members said it is generally safe to eat GM foods compared with 37% of the general public, a difference of 51 percentage points. The wide differences of opinion over GM foods is connected with a broader public discourse over the role of science research and, perhaps, scientific expertise in understanding and crafting policy solutions.

This new Pew Research Center survey explores public thinking about scientists and their research on GM foods in some detail. As such, this survey can help address the ways in which public views of and trust in scientists may contribute to an opinion divide between the public and members of the scientific community on these issues.

In broad strokes, the survey shows that Americans believe the public is paying more attention to healthy eating today than they did 20 years ago. But, it is not clear to the public whether people are actually eating healthier today. About half of U.S. adults think the eating habits of Americans are *less* healthy today than they were 20 years ago and most point the blame at both the quantity and quality of what people eat.

Many Americans adopt their own food and eating philosophies because they have to – or want to. Some 15% of U.S. adults say they have at least mild allergies to one or more foods and another 17% have intolerances to foods. Food allergies are more common among women, blacks and people with chronic lung conditions such as asthma. A small minority of Americans describe themselves as either strictly or mostly eating vegan or vegetarian diets.

## Americans are paying attention to healthy eating, but many miss the mark

Collectively, the American public is paying more attention to healthy eating, but not fully embracing what they learn. At least, that's how most Americans see things, according to this survey.

Some 54% of Americans say that compared with 20 years ago, people in the U.S. pay more attention to eating healthy foods today. Smaller shares say people pay less attention (26%) or about the same amount of attention (19%) to eating healthy today.

But 54% of Americans say eating habits in the U.S. are less healthy than they were 20 years ago. A minority (29%) say eating habits are healthier today, while 17% say they are about the same.

The public points the finger at both quality and quantity in Americans' eating habits. When asked which is the bigger source of problems in Americans' eating habits, more say the issue is what people eat, not how much (24% vs. 12%). But a 63% majority says that both are equally big problems in the U.S. today.

### Perceptions of the American appetite: More pay attention to healthy eating but fewer reach that goal

*% of U.S. adults who say that compared with twenty years ago ...*

#### People in the U.S. pay \_\_\_\_ to eating healthy foods today

■ More attention ■ About the same amount of attention ■ Less attention



#### The eating habits of people in the U.S. are \_\_\_\_ today

■ More healthy ■ About the same ■ Less healthy



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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### A majority of the public says both quality and quantity of Americans' food consumption is a problem

*% of U.S. adults who say \_\_\_\_ is the bigger problem in the U.S. today*

■ The types of food people eat are not healthy enough  
 ■ The total amount of food people eat is too much  
 ■ Both are equally big problems



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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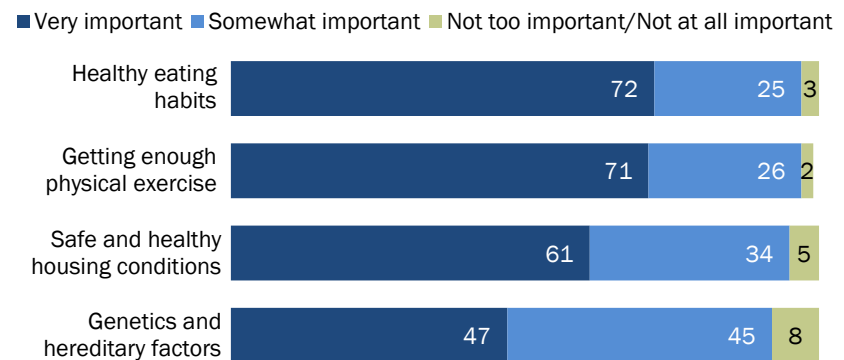
These beliefs are somewhat tied to people’s focus on food issues. People who care a great deal about the issue of GM foods are particularly likely to say Americans’ eating habits have deteriorated over the past two decades: 67% hold this view, compared with 53% among those not at all or not too concerned about the GM foods issue. People focused on eating healthy and nutritious are relatively more inclined to say the types of food people eat is a bigger problem in the U.S. today than the overall amount (34%, compared with 21% among those not at all or not too focused on healthy and nutritious eating.)

What’s driving public attention to eating? One factor may be a belief in the oft-repeated adage “you are what you eat.” Roughly seven-in-ten adults (72%) say that healthy eating habits are very important for improving a person’s chances of living a long and healthy life.

A similar share (71%) says getting enough exercise is very important. Some 61% say safe and healthy housing conditions are very important. But fewer – 47% – believe genetics and hereditary factors are critical to improving a person’s chances of a long and healthy life. Thus, most Americans consider their future health within their own grasps — if only they eat and exercise adequately.

### Majority of Americans say healthy eating, physical exercise are key to a long and healthy life

*% of U.S. adults who say each of the following is \_\_\_ when it comes to improving a person’s chances of a long and healthy life*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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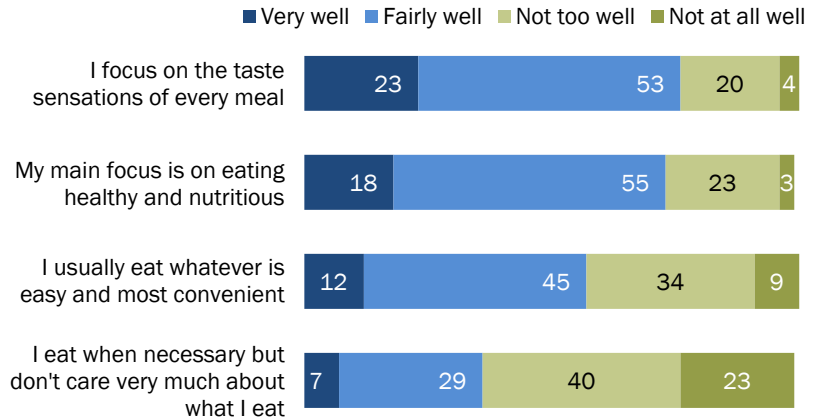
People focused on food issues are particularly likely to believe that healthy eating habits are important. Fully 86% of those focused on eating healthy and nutritious say that healthy eating habits are very important, compared with 56% among those with little focus on eating healthy and nutritious. And, 87% of those with a deep personal concern about the issue of GM foods say that healthy eating habits are very important for a long and healthy life, compared with 68% among those with no or not too much concern about the GM foods issue.

## Americans have a variety of eating styles and philosophies about food

Americans have many different approaches to eating. More say they focus on taste and nutrition than say they focus on convenience. Almost one-quarter (23%) of Americans say the statement “I focus on the taste sensations of every meal” describes them very well, while another 53% say this statement describes them fairly well. Similar shares say their “main focus is on eating healthy and nutritious,” with 18% saying this statement describes them very well and 55% saying it describes them fairly well.

### How Americans classify their own eating habits

*% of U.S. adults who say each of these statements describes them ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Smaller shares say the statements “I usually eat whatever is easy and most convenient” and “I eat when necessary but don’t care very much about what I eat,” describe them very well (12% and 7%, respectively). People with a particular concern about the GM foods issue and people focused on eating healthy and nutritious are less likely to describe themselves as unconcerned about what they eat.



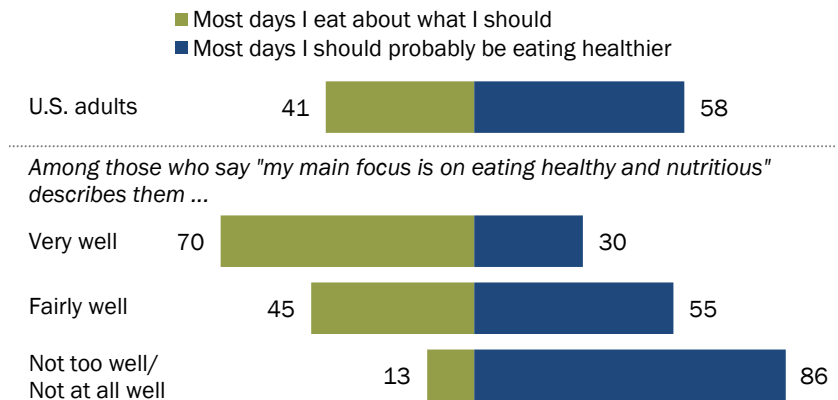
But, when Americans judge their own eating habits, a majority see themselves falling short. Some 58% of U.S. adults say that “most days I should probably be eating healthier.” About four-in-ten (41%) hit their eating targets about right, saying they eat about what they should most days.

Those who are focused on eating healthy are, by and large, satisfied with their eating. Seven-in-ten (70%) of this group says they eat about what they should on most days. By contrast, 86% of people who describe themselves as not at all or not too focused on healthy eating say they should probably be eating healthier on most days.

There are more modest differences in eating assessments by degree of concern about the issue of GM foods; 51% of those who care a great deal about the issue of GM foods says they eat about they should most days, compared with 37% of those with no particular concern or not too much concern about this issue.

### Most Americans feel they should eat healthier and they know who they are

*% of U.S. adults who say ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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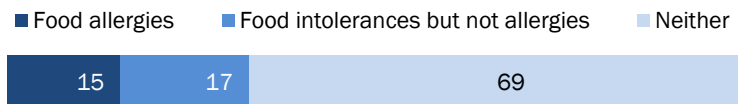
## Sizable minority of Americans have food allergies or intolerances to foods

More children and adults are experiencing allergic reactions to foods today. Concern about food allergies and sensitivities can be seen in many places – from the regulations governing the public school lunch program to the way restaurants and food manufacturers package and offer alternatives to the most common allergens.<sup>10</sup> For example, people with lactose intolerance can now choose from a wide range of milk and dairy alternatives made from soy and nuts. People allergic to the gluten in wheat can choose among special menu selections, even whole bakeries devoted to gluten-free options.

About 15% of U.S. adults say they have severe, moderate or mild allergies to at least one kind of food. Another 17% of adults have food intolerances, but no food allergies. Roughly seven-in-ten of the adult public (69%) has no food intolerances or allergies.

### 15% of U.S. adults report at least one food allergy

*% of U.S. adults who say they have ...*



Note: Respondents who have severe, moderate or mild food allergies are combined.

Respondents who did not give an answer are not shown.

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More women than men report food allergies. About two-in-ten (19%) women say they have severe, moderate or mild food allergies, compared with 11% of men. And, blacks are more likely to say they have food allergies (27%) than either whites (13%) or Hispanics (11%). In other respects, those with food allergies reflect a mix of demographic and educational backgrounds.<sup>11</sup>

The [Center for Disease Control and Prevention](#) reports a higher prevalence of asthma among children with food allergies. The Pew Research Center survey finds 29% of adults with asthma or another chronic lung condition have food allergies, compared with 12% among those who do not have chronic lung conditions.

<sup>10</sup> A report by [the CDC](#) finds an increase in reported food allergies among children between 1997 and 2011.

<sup>11</sup> Differences by gender and race in self-report food allergies are consistent with a [report](#) from the National Health and Nutrition Examination Survey conducted by the Center for Disease Control and Prevention.

## Vegans and vegetarians are a small minority of U.S., but they are a bit more common among younger generations and liberal Democrats

Vegetarianism has been around for centuries and interest in following this diet – most commonly defined as omitting meat and fish – has waxed and waned over time. Today, vegetarian options are commonplace at many restaurants and food proprietors. Some of those who avoid meat and fish go a step further; vegans typically omit all foods that originate from animals including eggs and dairy products. But some people who consider themselves either vegetarian or vegan are “flexible” about what they eat and at least occasionally veer from these eating principles.

The Pew Research Center survey asked for people’s own assessment of whether the terms vegan and vegetarian applied to them. A small minority – 9% – of U.S. adults identifies as either strict vegetarians or vegans (3%) or as mostly vegetarian or vegan (6%). The vast majority of Americans (91%) say they are neither vegetarian nor vegan.

Younger generations are more likely than others to identify as at least mostly vegan or vegetarian. Some 12% of adults ages 18 to 49 are at least mostly vegan or vegetarian, compared with 5% among those ages 50 and older. Men and women are equally likely to be vegan or vegetarian. There are no differences across region of the country, education or family income in the share who is vegan or vegetarian. There are more liberal Democrats in the vegan and vegetarian group, however. Some 15% of liberal Democrats are at least mostly vegan or vegetarian, compared 4% among conservative Republicans.<sup>12</sup>

People who have food allergies are more likely to be vegan or vegetarian, suggesting that some food restrictions stem from adverse reactions to certain foods. Among adults with food allergies, 21% identify as strictly or mostly following vegan or vegetarian diets. Just 8% of adults with food intolerances (but no allergies) and 6% of adults with neither food allergies nor intolerances are vegan or vegetarian.

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### More vegans and vegetarians in younger generations

*% who say they are strictly or mostly vegan or vegetarian*

U.S. adults	9%
18-29	12
30-49	12
50-64	5
65+	5
Have food allergies	21
Have food intolerances, but no allergies	8
Have neither	6
Republican	6
Democrat	12
Conservative Rep	4
Mod/lib Republican	8
Mod/cons Democrat	9
Liberal Democrat	15

Note: Republicans and Democrats include independents and other non-partisans who “lean” toward the parties.

Respondents who do not lean to a political party not shown.

Source: Survey conducted May 10-June 6, 2016.

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<sup>12</sup> These figures combine those who identify as either Democratic or Republican with independents who lean to each party, respectively.

Thus, about a third of people who identify as at least mostly vegan or vegetarian also report food allergies.

**Social networks: friends eat like friends**

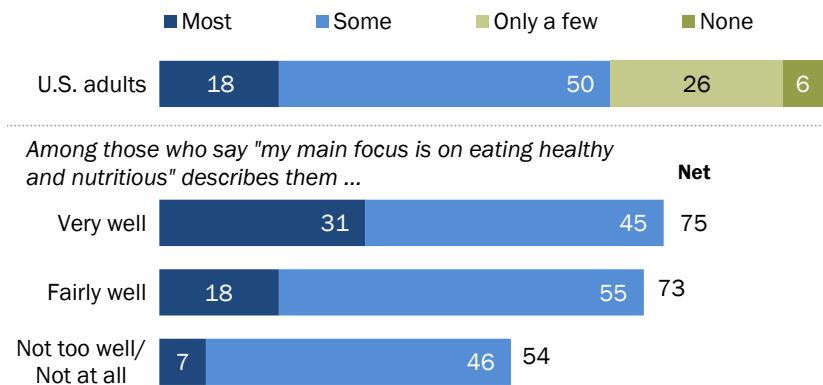
People tend to cluster together in social networks with others who are similar. The Pew Research Center survey finds this social pattern also occurs when it comes to people’s eating philosophies and dietary habits.

Most Americans say that at least some of their closest friends and family focus on eating healthy and nutritious. Some 68% say this, while 32% say only a few or none of their friends and family does this.

Adults who say the statement “my main focus is on eating healthy and nutritious” describes them at least very or fairly well are more likely to say at least some of their closest family and friends do the same.

**Majority of the public says at least some of their family and friends focus on eating healthy and nutritious food**

*% of U.S. adults who say \_\_\_ of their closest family and friends are focused on healthy and nutritious eating*



Note: Respondents who did not give an answer are not shown.  
 Source: Survey conducted May 10-June 6, 2016.  
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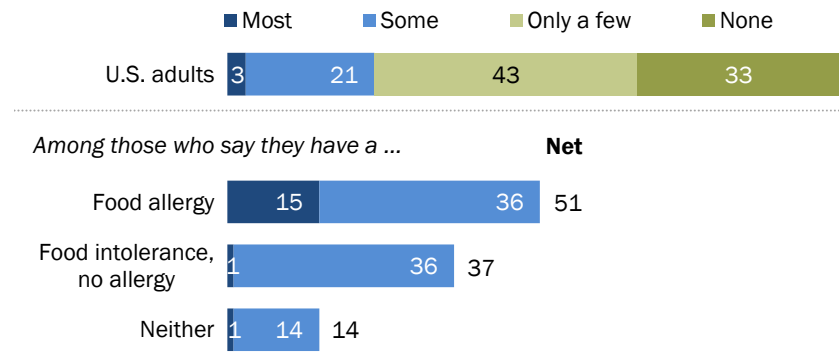
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A minority of the population (24%) says that most or some of their closest family and friends have food intolerances or food allergies. Among those who say that they, personally, have severe to mild allergies to some foods, a larger share (51%) says at least some of their closest family and friends also have intolerances or allergies.

A similar pattern occurs when it comes to vegetarians and vegans. Some 12% of U.S. adults say that at least some of their close family and friends are vegan or vegetarian. But there are stark differences in social network composition among those who are, personally, vegan or vegetarian and those who are not. Fully 52% of people who are at least mostly vegan or vegetarian say that some or most of their closest family and friends also follow vegan or vegetarian diets. Just 8% of people who are not themselves vegan or vegetarian say the same.

### Minority of U.S. adults have close family and friends with food allergies or intolerances

*% of U.S. adults who say \_\_\_\_\_ of their closest family and friends have food intolerances or food allergies*

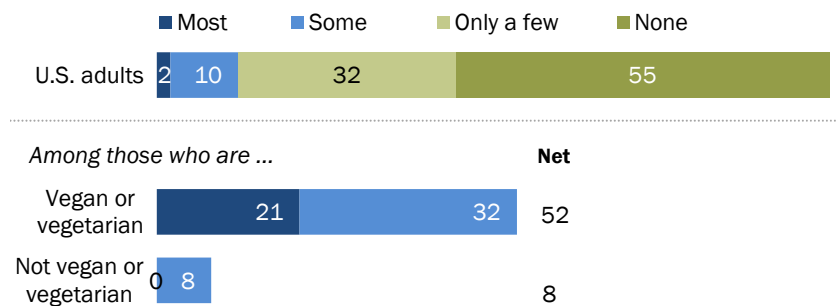


Note: Respondents who have severe, moderate or mild food allergies are combined. Respondents who did not give an answer are not shown.  
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### More than half of Americans say none of their close family and friends are vegan or vegetarian

*% of U.S. adults who say \_\_\_\_\_ of their closest family and friends are vegan or vegetarian*



Note: Respondents who identify as strictly or mostly vegan/vegetarian are combined. Respondents who did not give an answer are not shown.  
 Source: Survey conducted May 10-June 6, 2016.  
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## Many Americans say it's good party hosting behavior to inquire about food restrictions; few say it bothers them when guests ask for dietary accommodations

Businesses have changed what foods they offer and how foods are packaged to accommodate Americans' diverse dietary needs and preferences over the past decade or more. What do people think about accommodating people's eating needs and preferences at private social gatherings?

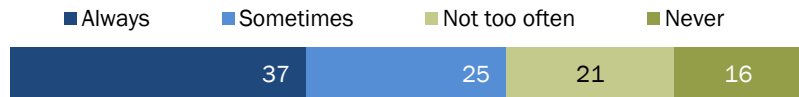
The Pew Research Center survey finds 37% of Americans say that, when hosting social gatherings, the host should always ask guests ahead of time if they have any

food restrictions or allergies. One-quarter say they should do this sometimes, while 37% believe the host should never or not too often ask about food restrictions before hosting social gatherings.

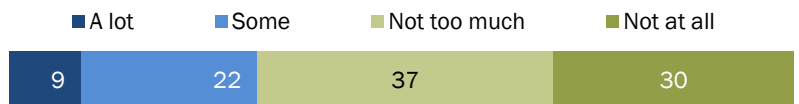
When they are the host, a minority (31%) of Americans say it bothers them at least some when guests ask for special kinds of food options at their social gatherings. Larger shares say it bothers them not too much (37%) or not at all (30%) when someone asks for special food accommodations at their social gatherings.

### Many Americans say hosts should ask about dietary needs, few bothered by guests asking for special foods

*% of U.S. adults who say a host should \_\_\_ ask guests ahead of time if they have any food restrictions or food allergies*



*% of U.S. adults who say it bothers them \_\_\_ when guests ask for special food options at social gatherings they are hosting*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Americans' beliefs about proper hosting behavior tend to be related to their own food ideologies. About half (49%) of those with a deep personal concern about the GM foods issue say that hosts should always ask guests about dietary needs; this compares with 32% of those with no or not too much concern about the GM foods issue. But people who themselves have food allergies are about equally likely as other adults to say that a host should ask about food allergies ahead of a gathering. And, like other Americans, a minority of those focused on food issues say they are bothered at least some when guests ask for special food options at a gathering they host.

### Food-focused are more inclined to think hosts should ask guests for food needs

*% of U.S. adults who say ...*

	Host should _____ ask guests about food restrictions/allergies		
	Always	Sometimes	Not too often/ Never
U.S. adults	37	25	37
<i>Among those who _____ about the issue of GM foods</i>			
Care a great deal	49	26	24
Care some	38	28	33
Care not too much/Not at all	32	22	45
<i>Among those who say "my main focus is on eating healthy and nutritious" describes them ...</i>			
Very well	41	29	29
Fairly well	35	28	37
Not too/Not at all well	39	16	45
<i>Among those with ...</i>			
Food allergies	44	26	30
Food intolerances	40	21	37
Neither	35	26	39

Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Food studies and their conflicting findings abound, but most Americans see this as a sign of progress

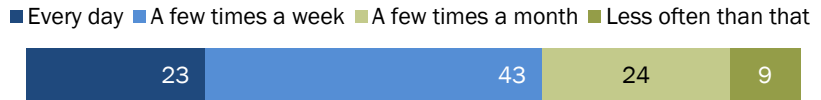
A clear sign that many Americans are thinking about food is that they are paying attention to news and research studies on the subject. Fully two-thirds (66%) of the public says they hear or read news stories about the health effects of what people eat and drink every day (23%) or a few times a week (43%). About one-quarter (24%) say they see these news stories a few times a month while 9% report seeing these stories less often than that.

And many Americans perceive such studies as contradicting prior news reports at least some of the time. About half of U.S. adults (51%) say they hear or read news stories about the health effects of foods that conflict with earlier studies some of the time and roughly one-in-five (21%) say this occurs all the time. A minority of Americans (26%) say this does not occur at all or not too often.

People who regularly follow news about food and health issues are particularly likely to see news stories with contradictory findings. Some 50% of

### Almost one-quarter of the public says they hear news stories about health effects of food every day

*% of U.S. adults who say they hear or read news stories about the health effects of what people eat and drink ...*

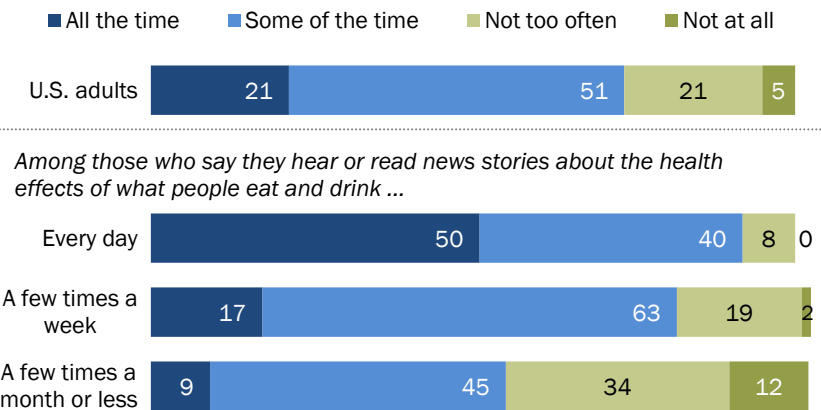


Note: Respondents who did not give an answer are not shown.  
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### Food news 'whiplash' over conflicting studies is especially common among those who follow food and health news daily

*% of U.S. adults who say they hear or read news stories about the health effects of food and drink which conflict with earlier news stories ...*



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Americans who follow news about the health effects of foods on a daily basis say they see conflicting news reports about food all the time. Just 17% of those who hear or read food news a few times a week say that conflicting stories about the health effects of food and drink occur all the time and 9% of people who less regularly attend to food news say conflicting reports occur all the time.

There is considerable concern in the science community that this whiplash effect might confuse Americans and affect their views of the trustworthiness of science findings. The survey included two questions to shed light on how the public makes sense of contradictory findings about the health effects of foods.

A majority of the American public (61%) says “new research is constantly improving our understanding about the health effects of what people eat and drink, so it makes sense that these findings conflict with prior studies,” while a 37% minority says “research about the health effects of what people eat and drink cannot really be trusted because so many studies conflict with each other.”

People’s focus on food issues is not strongly related to beliefs about news stories with conflicting findings. Instead, people’s general levels of knowledge about science, based on a nine-item index, tie to how people make sense of conflicting food studies in the news. Some 74% of those high in science knowledge say studies with findings that conflict with prior studies are signs that new research is constantly improving. But those in low science knowledge are closely divided over whether such studies are signs of improving research (46%) or show that food research cannot really be trusted (50%).

### Most Americans say conflicting news stories about the health effects of food reflect improved understanding

*% of U.S. adults who say ...*

- Research about the health effects of food cannot be trusted because many studies conflict
- New research constantly improves understanding of foods' health effects so it makes sense findings conflict

U.S. adults 37 61

*Among those with \_\_\_ science knowledge*

High 26 74

Medium 33 65

Low 50 46

Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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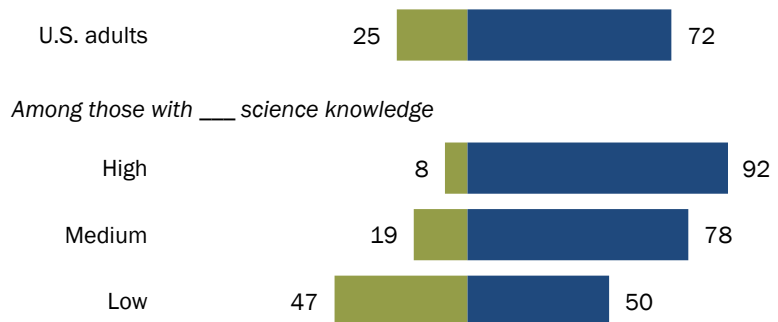
And, fully 72% of U.S. adults say even though new studies sometimes conflict with prior findings “the core ideas about how to eat healthy are pretty well understood.” Only one-quarter of the public (25%) feels overwhelmed by the inconsistent findings, saying, “It is difficult to know how to eat healthy because there is so much conflicting information.”

Here, too, beliefs are closely linked with people’s level of knowledge about science. Fully 92% of those high in science knowledge say the core ideas about how to eat healthy are pretty well understood as do 78% of those with medium science knowledge. But those low in science knowledge are closely split with half (50%) saying the core ideas of how to eat healthy are pretty well understood and 47% saying it is difficult to know how to eat healthy because there is so much conflicting information. Thus, Americans with less grounding in science information appear to be more confused by and distrustful of research with contradictory findings about food and health effects.

### Despite conflicting reports, a majority of Americans say they understand the core ideas of healthy eating

% of U.S. adults who say ...

- It is difficult to know how to eat healthy due to conflicting information
- Even though studies conflict, the core ideas of healthy eating are pretty well understood



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## 2. Americans' views about and consumption of organic foods

Americans' appetite for organic foods has grown steadily over the past few decades. According to the [Economic Research Service](#), retail sales of organic foods more than doubled from 1994 to 2014 with a steady uptick of about 10% annual growth in retail sales over the past several years.<sup>13</sup>

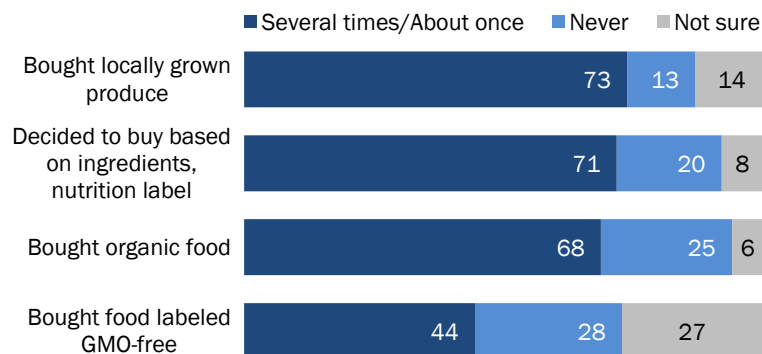
Almost surely, a driver of this trend is people's health concerns. Most Americans believe organic produce is better for one's health than conventionally grown produce. Whether the science lines up behind this belief is less clear. Organic farming typically eliminates the use of conventional pesticides and fertilizers and, as a result, organic fruits, vegetables and grains have substantially lower levels of pesticides. At least one recent meta-analysis, reviewing the results of more than 340 studies, found that on average, organic foods also have higher levels of antioxidants. But having more antioxidants is not sufficient for foods to be more nutritious and there is considerable scientific debate over whether organic foods provide a nutritional boost when compared with eating conventionally grown foods.<sup>14</sup>

### A majority of Americans purchased organic food in the past month and many buy foods based on the labeling

How do Americans' food and eating orientations play out in the grocery aisles? Some 73% of Americans say they bought locally grown fruits and vegetables in the past month. A similar share (71%) made purchasing decisions based on nutrition and ingredients labels. And, some 68% of Americans bought organic foods of some kind, whether produce, meat, fish, grains or packaged foods.

### Majority of adults have bought local and organic foods in past month, fewer have bought GMO-free products

*% of U.S. adults who say they or someone in their households \_\_\_\_ within the past 30 days ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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<sup>13</sup> Catherine Greene, Seth J. Wechsler, Aaron Adalja and James Hanson, Feb. 2016. "[Economic Issues in the Coexistence of Organic, Genetically Engineered \(GE\) and non-GE Crops](#)," Economic Research Service, U.S. Department of Agriculture.

<sup>14</sup> See the summary of Barański et al. 2014. "Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses" in the British Journal of Nutrition, 112 (5): 794-811 by Kenneth Chang, "[Study of Organic Crops Finds Fewer Pesticides and More Antioxidants](#)," New York Times, July 11, 2014.

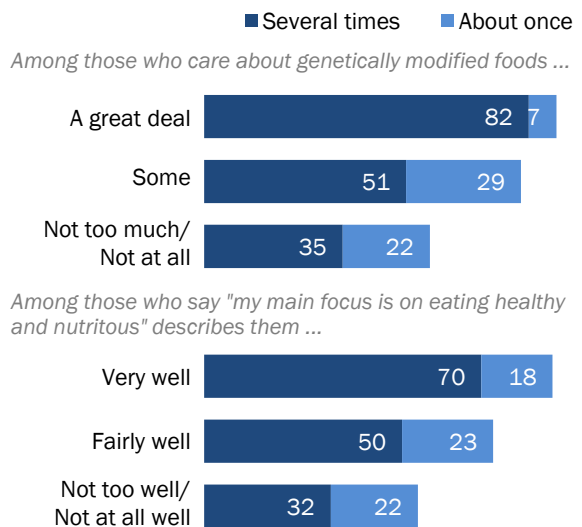
Some 44% of Americans say they bought food labeled as having no genetically modified organisms (GMO) – or GMO-free. About a quarter (28%) say they did not do this and another 27% are not sure if they bought GMO-free food in the past month. (Note that references to GM, genetically engineered and GMO foods are synonymous in this report.)

The [European Union](#) and other places around the world have long required mandatory labeling of food products with GM ingredients. Voluntary labeling of GMO-free foods became more common in the U.S. starting around 2009 when the largest purveyor of natural foods began requiring verification and labeling of their house-brand products as non-GMO.<sup>15</sup> In July 2016, [Congress passed a bill](#) to establish national standards for labeling food containing genetically engineered modified ingredients. It is expected to be another two years before these labeling standards are fully in effect, however.

People's food ideologies are closely connected with their food-purchasing habits. For example, those who care a great deal about the issue of GM foods are more likely to make buying decisions based on the nutrition and ingredient label; 89% have done this in the past month compared with 57% of those who do not care too much or at all about the issue of GM foods. Similarly, 89% of those focused on eating healthy and nutritious have chosen food products based on the nutrition and ingredient label at least once in the past month. About half (54%) of those not too or not at all focused on eating healthy and nutritious have done this in the past month.

## People focused on food issues are especially likely to check the labels

*% of U.S. adults in each group who made food purchases based on the nutrition and ingredients label \_\_\_ in the past month ...*



Note: Respondents who did not do this in the past month and those who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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<sup>15</sup> See Catherine Greene, Seth J. Wechsler, Aaron Adalja and James Hanson, Feb. 2016. "[Economic Issues in the Coexistence of Organic, Genetically Engineered \(GE\) and non-GE Crops.](#)" Economic Research Service, U.S. Department of Agriculture.

People’s food philosophies are also closely connected to purchases of organic foods and foods labeled GMO-free. People who care a great deal about the issue of GM foods are particularly likely to have bought organic foods and foods labeled GMO-free in the past month. Similarly, people focused on eating healthy and nutritious are more likely those who are not at all or not too focused on eating healthy and nutritious to have purchased organic foods at least once in the past month and to have bought food labeled GMO-free.

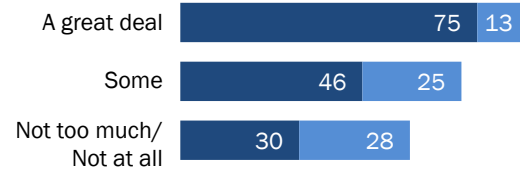
### Food-focused Americans more likely to buy organic and GMO-free foods

% of U.S. adults

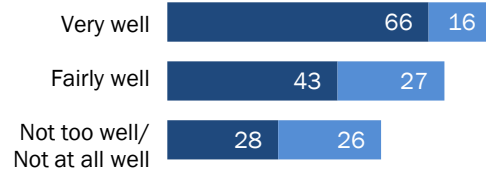
#### Bought organic food in \_\_\_\_ the past month

■ Several times ■ About once

Among those who care about genetically modified foods ...



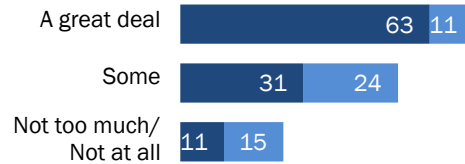
Among those who say "my main focus is on eating healthy and nutritious" describes them ...



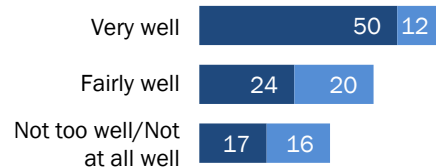
#### Bought food labeled GMO-free \_\_\_\_ in the past month

■ Several times ■ About once

Among those who care about GM foods ...



Among those who say "my main focus is on eating healthy and nutritious" describes them ...



Note: Respondents who did not do this in the past month and who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Overall, how much organic food do people eat? Four-in-ten Americans say that some (34%) or most (6%) of the food they eat is organic. Some 15% of Americans say that none of the food they eat is organic and 44% say not too much of what they eat is organic.

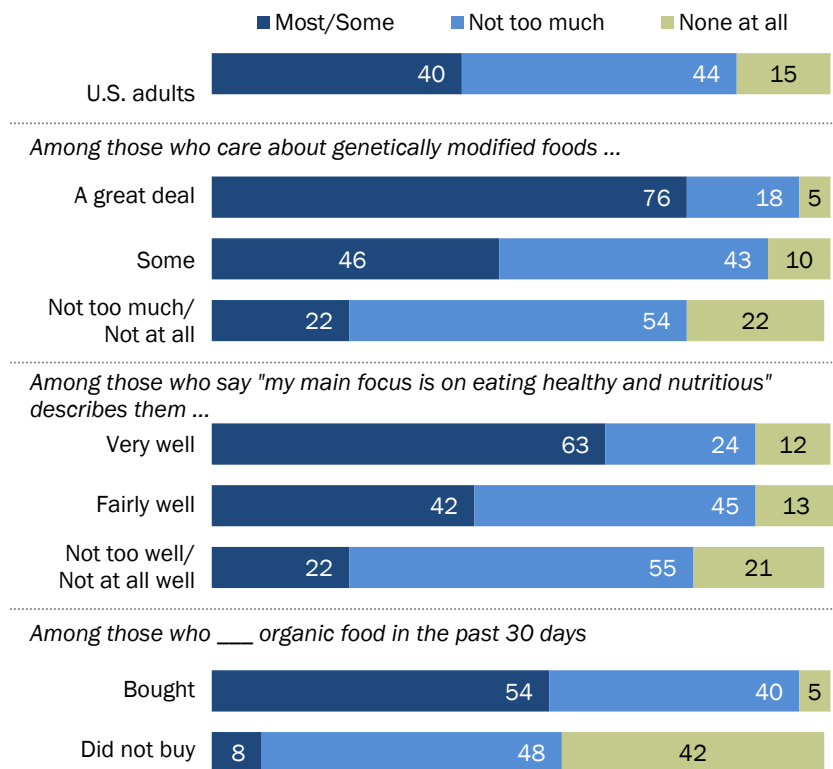
Food purchasing behavior maps with overall consumption of organics and with people's food ideologies. About half of those who bought organic foods within the past month say that most (9%) or some (45%) of what they eat is organic. Although four-in-ten people who bought organic foods in the past month say that, overall, not too much of what they eat is organic.

Fully 76% of those deeply concerned about the issue of GM foods say at least some of what they eat is organic. By contrast, just 22% of those with little/no concern about the issue of GM foods say at least some of what they eat is organic, 54% say not too much of what they eat is organic and 22% say none of what they eat is organic.

There is a similar pattern among those focused on eating healthy and nutritious; 63% among this group say at least some of what they eat is organic, compared with 22% of those not too or not at all focused on eating healthy and nutritious.

### Four-in-ten Americans say that at least some of the food they eat is organic

*% of U.S. adults who say \_\_\_ of the food they eat is organic*



Note: Respondents who did not give an answer are not shown.  
Source: Survey conducted May 10-June 6, 2016.  
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## American shoppers are looking for healthy foods when they head for the organic aisles

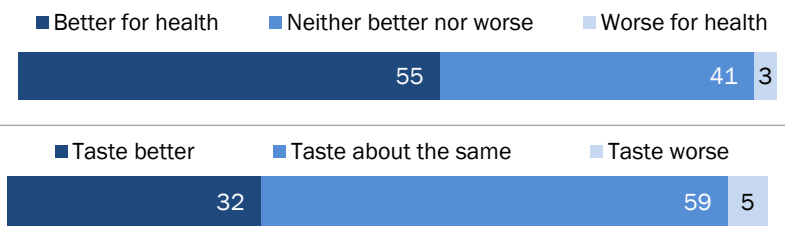
Most Americans are buying organic foods because of health concerns. More than half (55%) of the public says that organic fruits and vegetables are better for one's health than conventionally grown produce. Another 41% say organic produce is neither better nor worse for one's health and 3% say that organic produce is worse for one's health.

Three-quarters of U.S. adults who bought organic foods in the past month (76%) say they were looking for healthier foods. Fewer organic food consumers say that helping the environment (33%) or convenience (22%) were reasons for buying organic.

But fewer Americans say organic produce tastes better than conventionally grown fruits and vegetables. About one-third of U.S. adults (32%) say that organic produce tastes better, 5% say it tastes worse and a 59% majority says that organic and conventionally grown produce taste about the same.

## Majority of Americans say organic produce is healthier than conventionally grown produce

*% of U.S. adults who say organic fruits and vegetables are \_\_\_ than conventionally grown produce*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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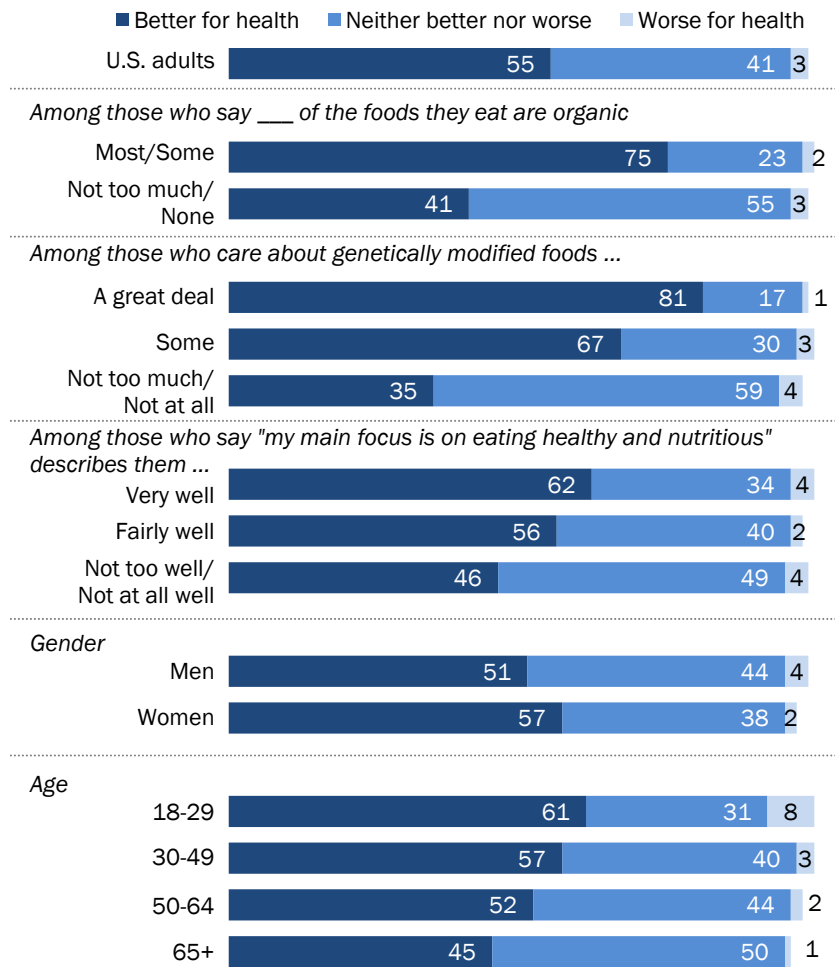
Younger adults, ages 18 to 49, are more inclined than older adults to consider organic produce better for one's health. There are no differences among men and women on views of the healthfulness of organic foods.

Fully three-quarters (75%) of people who consume more organic foods, that is those who say that most or some of the foods they eat are organic, believe that organic produce is generally better for one's health than other produce. This compares with 41% of those who eat less organic foods.

A similar pattern is found among those focused on food issues. Fully 81% of those who care a great deal about the issue of GM foods say that organic produce is a boon to health, compared with 35% of those who do not care at all or not too much about this issue. A 62% majority of those focused on eating healthy and nutritious says that organic produce is better for one's health. Those who are not too or not at all focused on eating healthy and nutritious are less convinced that organic produce has health benefits: 46% say they do, while 49% say organic produce is no different than conventionally grown produce.

### Younger adults see organic foods as a health boon

% of U.S. adults who say organic fruits and vegetables are \_\_\_ than conventionally grown produce



Note: Respondents who did not give an answer are not shown.  
 Source: Survey conducted May 10-June 6, 2016.  
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Fewer people see a taste advantage for organic produce. Overall, 59% of Americans say that organic produce tastes about the same as conventionally grown produce.

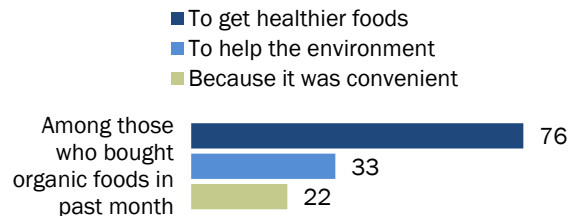
But people who eat more organic foods are comparatively more inclined to say they taste better. About half (51%) of those who say most or some of what they eat are organic foods say that organic produce tastes better, 45% say organic produce tastes about the same. By comparison, fully 71% of those who do not eat organic foods at all or not too much say that fruits and vegetables grown organically taste about the same as other foods, a fifth (20%) say organic foods taste better.

The Pew Research Center survey also finds that health concerns are a key reason people purchase organic foods. Among those who bought organic foods in the past month, 76% say a reason was to get healthier foods. Fewer say that either convenience (22%) or environmental concerns (33%) were reasons for their purchases of organic foods.

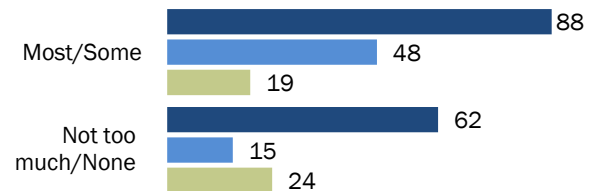
Both frequent and infrequent consumers of organic foods say that a desire for healthier foods was a reason they purchased organic foods recently.

### Most Americans who buy organic foods say they did so for health reasons

*% of who say each of these was a reason they bought organic foods in the past month*



*Among those who say \_\_\_ of the food they eat is organic*



Note: Based on respondents who bought organic food in the past month. Respondents who said each was not a reason or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Consumers care about cost, too, and whether it is easy to find organic foods

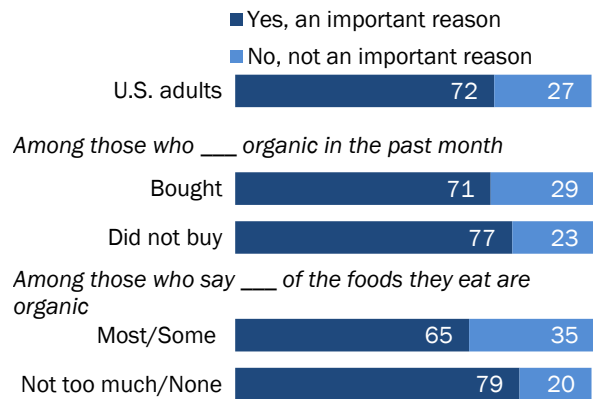
Cost considerations come into play as well. Roughly seven-in-ten (72%) U.S. adults say whether or not they buy organic foods depends on the price compared to conventionally grown foods.

Even frequent consumers of organic foods say they are cost sensitive. About two-thirds (65%) of people who eat more organic foods say the comparative cost of organic foods factors into their purchasing decisions, as do 79% of people who eat less organic foods.

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### Majority of Americans say cost of organic foods matter in their purchases

*% of U.S. adults who say that when organic foods cost more than conventionally grown foods, the higher price is or is not an important reason in whether they buy*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Availability could also affect how often people buy organic foods. One-third of Americans say that it is very easy to find organic foods in their local communities. Another 48% say they are easy to find. A minority, 18%, say organic foods are hard or very hard to find in their local communities. Americans living in rural areas are less likely than those in urban or suburban areas to say that organic foods are very easy to find. But overall, some (66%) of rural-dwelling Americans say it is easy or very easy to find organic foods in their communities. This compares with 84% of those in urban areas and 85% of those in suburban areas.

There are modest differences in ease of finding organic foods between those who purchased these foods in the past month and those who have not. And a majority of people who are heavier consumers of organic foods, say, overall finding organic foods in their communities is easy or very easy.

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### Easy availability of organic foods is modestly linked with consumption

*% of U.S. adults who say it is \_\_\_ to find organic foods in their local communities*

	<b>Very easy</b>	<b>Easy</b>	<b>Hard/ Very hard</b>
U.S. adults	33	48	18
<i>Among those who ___ in the past month</i>			
Bought organic foods	37	48	16
Did not buy organic foods	28	49	21
<i>Among those who say ___ of the foods they eat are organic</i>			
Most/Some	43	42	15
Not too much/None	27	52	20

Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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### 3. Public opinion about genetically modified foods and trust in scientists connected with these foods

Genetically modified (GM) foods contain at least one ingredient coming from a plant with an altered genetic composition.<sup>16</sup> Genetic modification, also known as genetic engineering, often introduces new, desirable characteristics to plants, such as greater resistance to pests. Many U.S. crops are grown using genetically engineered seeds, including a large share of the soybean, corn, cotton and canola crop. As a result, the majority of processed foods in the U.S. contain at least one genetically modified ingredient.

Despite the growing use of genetically modified crops over the past 20 years, most Americans say they know only a little about GM foods. And many people appear to hold “soft” views about the health effects of GM foods, saying they are not sure about whether such foods are better or worse for one’s health. When asked which of three positions best fits their viewpoints, about half of Americans (48%) say the health effects of GM foods are no different than other foods, 39% say GM foods are worse for one’s health and one-in-ten (10%) say such foods are better for one’s health.

About one-in-six (16%) Americans care a great deal about the issue of GM foods. These more deeply concerned Americans predominantly believe GM foods pose health risks. A majority of this group also believe GM foods are very likely to bring problems for the environment along with health problems for the population as a whole.

While a [2016 report from the National Academies of Sciences, Engineering and Medicine](#) suggests there is scientific consensus that GM foods are safe, a majority of Americans perceive disagreement in the scientific community over whether or not GM foods are safe to eat. And, only a minority of Americans perceive scientists as having a strong understanding of the health risks and benefits of GM foods.

Perhaps some of this skepticism comes from people’s concerns about the motives of research scientists. Some three-in-ten Americans say that research findings about GM foods are often influenced by the researchers’ desires to help their industries. And people deeply concerned about this issue are particularly skeptical about the influence of industries behind research findings. A minority of three-in-ten Americans say that research findings from scientists about GM foods are often influenced by the best available evidence. People who know more about science topics,

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<sup>16</sup> Animals can also be genetically modified but most discussion about the role of GM foods in the U.S. has centered on crops. For background see the summary on [food safety by the World Health Organization](#) or “[Genetically Engineered Crops: Experiences and Prospects](#)” from the National Academies of Sciences, Engineering and Medicine, 2016.

generally, are more likely to trust information from scientists and see scientific research findings about GM foods in a more favorable light.

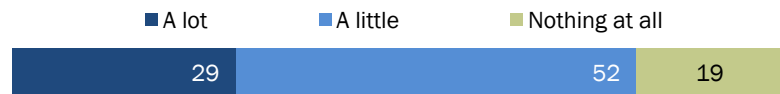
### Public awareness of genetically modified foods runs the gamut

Foods with genetically modified ingredients have been available to Americans since about the mid-1990s when U.S. farmers began using genetically engineered crop varieties designed to better tolerate herbicides and resist pests.<sup>17</sup> Today, many processed foods in the United States contain ingredients that are genetically modified. More than 90% of the soybeans, corn, cotton and canola grown in the United States come from genetically engineered seeds. Genetically engineered ingredients are widely used in processed foods from breakfast cereals to cooking oils to corn chips.<sup>18</sup>

Most Americans have heard something about GM foods; 29% have heard “a lot,” roughly half (52%) have heard “a little.” About one-in-five (19%) Americans have heard “nothing at all” about GM foods.

### Some 29% of Americans have heard a lot about GM foods; 19% have heard nothing

*% of U.S. adults who say they have heard or read \_\_\_ about foods with genetically modified ingredients*



Note: Respondents who did not give an answer are not shown.

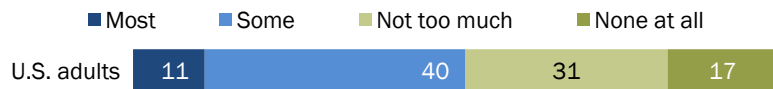
Source: Survey conducted May 10-June 6, 2016.

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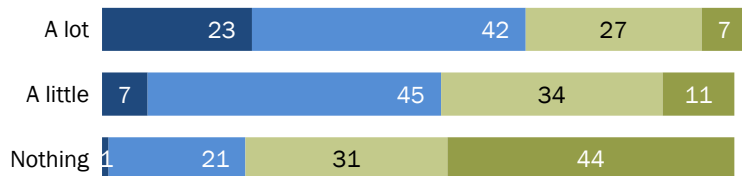
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### About half of Americans say at least some of the food they eat has GM ingredients

*% of U.S. adults who say \_\_\_ of the food they eat has genetically modified ingredients*



*Among those who have heard or read \_\_\_ about GM foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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<sup>17</sup> Fernandez-Cornejo, Jorge, Wechsler, Seth, Livingston, Mike and Mitchell, Lorraine. Feb. 2014. [Genetically Engineered Crops in the United States](#), Economic Research Report 162, Economic Research Service, U.S. Department of Agriculture.

<sup>18</sup> Catherine Greene, Seth J. Wechsler, Aaron Adalja and James Hanson, Feb. 2016. [“Economic Issues in the Coexistence of Organic, Genetically Engineered \(GE\) and non-GE Crops.”](#) Economic Research Service, U.S. Department of Agriculture.

People's perceptions of how much GM food they eat is often seen as a benchmark for the public's familiarity with GM foods. The argument goes that people who see themselves as *not* eating GM foods must be largely unaware that much of today's food supply contains at least some GM ingredients, particularly foods using genetically modified corn or corn oil.

Overall, just 11% of Americans estimate that most of the food they eat has GM ingredients, another four-in-ten (40%) say some of the food they eat has GM ingredients. About half of the public (48%) says they do not eat GM foods or do so not too much.

Familiarity with GM foods is linked with people's perceptions of their own consumptions. Some 23% of those who say they have heard or read a lot about GM foods say that most of what they eat contains genetically modified ingredients. Another 42% of this group says they eat some GM foods. Just 1% of those who say they have heard nothing about GM foods estimate that most of the food they eat contains genetically modified ingredients.

## About half of Americans see no difference between GM and other foods, while a sizable minority say GM foods are a health risk

A number of observers have suggested that Americans' limited familiarity with genetically modified foods suggests that people's opinions about GM are "soft" and, therefore, more likely to change over time and, potentially, to be sensitive to differences in survey question wording.

The Pew Research Center survey explored this possibility by first asking about the safety of eating of GM foods with an explicit option for those not sure of their opinions to register that uncertainty. Roughly a quarter of adults (26%) said they were not sure of their views on this topic. A follow up question among the unsure asked for their "leaning" about whether GM foods were generally better for one's health, worse, or neither. Some 58% of this group opted for a neutral position that GM foods were neither better nor worse for one's health than foods without GM ingredients.

Overall, some 39% of Americans say that GM foods are worse for one's health after combining the responses to the first question with "leaning" views on the second question. About half (48%) of Americans say GM foods are neither better nor worse for one's health than other foods, and a minority of 10% say that GM foods are better for one's health.

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### Beliefs about GM foods includes some with "soft" views

*% of U.S. adults who say foods with genetically modified ingredients are generally \_\_\_\_ than foods with no genetically modified ingredients*

#### If given an option of saying "not sure"

Worse for health	33%
Neither better nor worse for health	32
Better for health	7
Not sure	26
No answer (vol.)	1

#### Among those saying "not sure"

Worse for health	22
Neither better nor worse for health	58
Better for health	11
No answer (vol.)	10

#### Views about GM foods when both questions are combined

Worse for health	39
Neither better nor worse for health	48
Better for health	10
No answer or refused to lean (vol.)	3

Note: Respondents were first given the option of answering "not sure" when asked about the health impacts of genetically modified foods. Those respondents (and any who gave no answer) were then asked which option they were "leaning" toward if they had to choose.

Source: Survey conducted May 10-June 6, 2016.

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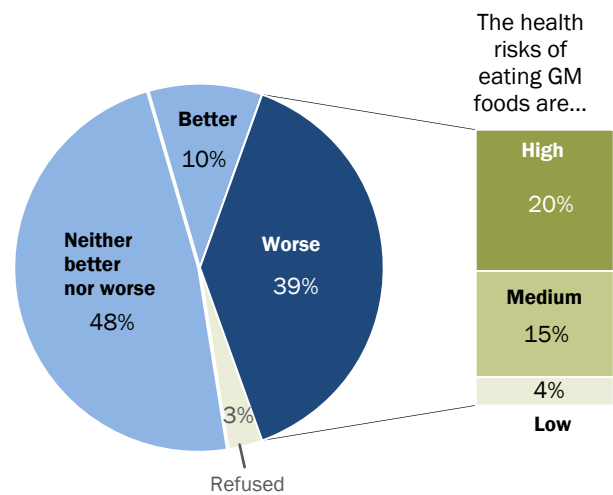
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The Pew Research Center survey asked respondents who say foods with GM ingredients are worse for one's health to evaluate the magnitude of the risk of eating GM foods. More Americans consider the risk either medium (15% of all U.S. adults) or high (20% of all U.S. adults) than consider the health threat of GM foods to be low (just 4% of all U.S. adults).

### Half of those who say GM foods are worse for health say the health risks of eating GM foods are high

*% of U.S. adults who say foods with genetically modified ingredients are generally \_\_\_ for health than foods with no genetically modified ingredients*



Note: Beliefs about genetically modified foods include those who "lean" toward each response. Respondents saying risks of eating GM foods are very high/high or very low/low are combined.

Source: Survey conducted May 10-June 6, 2016.

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People who have heard or read more about GM foods are much more likely to consider these foods worse for one's health. Those who are less familiar with GM foods are comparatively more inclined to say the effect of GM foods is neither better nor worse than non-GM foods. For example, about half (50%) of those who have heard or read a lot about GM foods say such foods are worse for one's health. By contrast, just two-in-ten (20%) of those who have heard nothing about GM foods consider these foods worse for one's health. Six-in-ten of those who have heard nothing about GM foods prior to taking the survey say such foods are neither better nor worse for one's health.

People who have heard or read a lot about GM foods are also much more likely to say the health risks from genetically modified foods are high (31% vs. 9%).

## Half of Americans who have heard a lot about GM foods see them as health risks; those unfamiliar are mostly neutral

*% of U.S. adults who say foods with genetically modified ingredients are generally better, neither better nor worse or worse for health than foods with no GM ingredients*

If given an option of saying "not sure"	Among those who say they have heard ___ about GM foods		
	A lot	A little	Nothing
Worse for health	45	34	14
Neither better nor worse	34	33	29
Better for health	12	5	4
Not sure	9	27	51
No answer (vol.)	<1	1	2
<b>Among those saying "not sure"</b>			
Worse for health	*	23	11
Neither better nor worse	*	61	60
Better for health	*	7	18
No answer (vol.)	*	8	11
<b>Views about GM foods when both questions are combined</b>			
Worse for health	50	41	20
Neither better nor worse	37	50	60
Better for health	12	7	13
No answer or refused to lean (vol.)	<1	2	6

Note: Respondents were first given the option of answering "not sure" when asked about the health impacts of genetically modified foods. Those respondents (and any who gave no answer) were then asked which option they were "leaning" toward if they had to choose. \* Indicates there are not enough respondents in this group to show separately.

Source: Survey conducted May 10-June 6, 2016.

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## Younger adults and those more concerned about the issue say GM foods are a health risk

People's views about the health effects of GM foods tend to vary with their own levels of concern about the issue as well as with age.

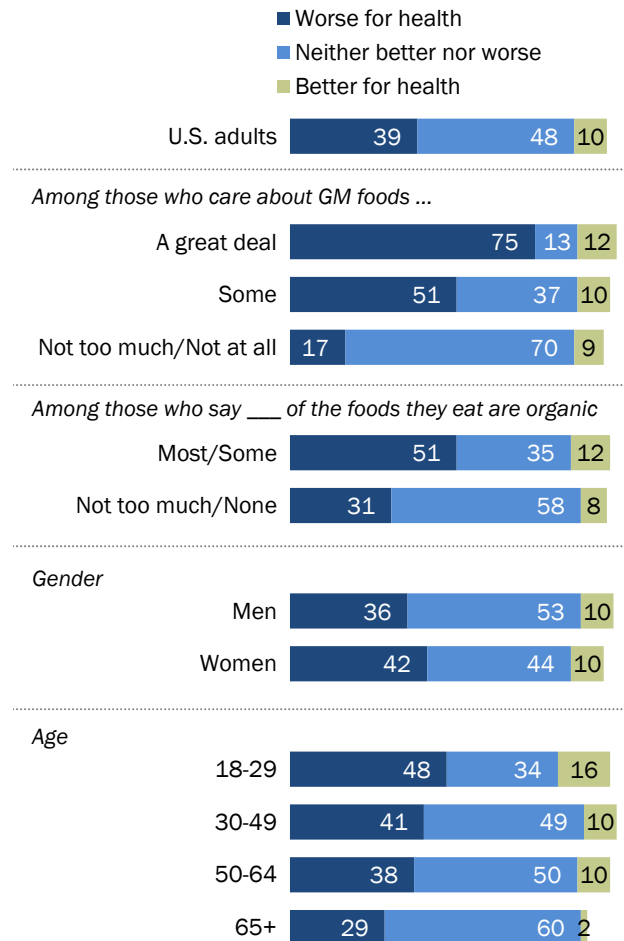
Three-quarters of people who care a great deal about the issue of GM foods say such foods are worse for one's health than foods without GM ingredients. By contrast, only 17% of those who do not care at all or not too much about this issue say that GM foods are health risks. Those who care "some" about this issue fall in between with 51% of this group saying that GM foods are worse for one's health.

Younger adults are more likely than their elders to consider GM foods health risks. About half (48%) of those ages 18 to 29 say GM foods are worse for one's health than non-GM foods. In comparison, roughly three-in-ten (29%) of those ages 65 and older say the same.

There are modest differences in views by gender. Women are more likely to say foods with GM ingredients are worse for one's health (42% vs. 36%), while men are more inclined to say foods with GM ingredients are neither better nor worse for health (53% vs. 44%). A [2014 Pew Research Center survey](#) also found women were more likely than men to say it is generally unsafe to eat GM foods.

## Younger adults more likely to see foods with GM ingredients as worse for health

*% of U.S. adults who say foods with genetically modified ingredients are generally \_\_\_ than foods with no GM ingredients*



Note: Beliefs about genetically modified foods include those who "lean" toward each response. Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"The New Food Fights: U.S. Public Divides Over Food Science"

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Frequent consumers of organic foods are also relatively more inclined to see GM foods as worse for one's health. But people who are focused on eating healthy and nutritious are about equally likely as those with little or no focus on this to say that GM foods are worse for one's health than other foods.

Other factors – including people's education and general level of science knowledge – are only modestly linked with beliefs about the health effects of GM foods. While a related [Pew Research Center report](#) found issues related to climate and energy issues are strongly divided along political lines, Democrats and Republicans hold similar views on the effects of eating GM foods.

### Modest differences in views about the safety of GM foods by education, politics

*% of U.S. adults who say foods with genetically modified ingredients are generally \_\_\_ than foods with no genetically modified ingredients*

	<b>Worse for health</b>	<b>Neither better nor worse</b>	<b>Better for health</b>
U.S. adults	39%	48%	10%
Whites	40	52	6
Blacks	37	51	8
Hispanics	43	35	19
<i>Among those with ___ science knowledge</i>			
High	37	56	6
Medium	47	44	8
Low	29	50	15
Postgraduate degrees	39	57	4
College degrees	46	47	6
Some college	44	44	10
H.S. degrees or less	32	50	13
<i>Party affiliation</i>			
Republican	39	50	9
Democrat	40	48	10
<i>Party by ideology</i>			
Conservative Rep	40	48	11
Mod/lib Republican	39	51	6
Mod/cons Democrat	40	44	14
Liberal Democrat	39	52	7

Note: Beliefs about genetically modified foods include those who "lean" toward each response. Respondents who did not give an answer are not shown. Whites and blacks include only non-Hispanics; Hispanics are of any race. Republicans include independents who lean to the Republican party; Democrats include independents who lean to the Democratic party; those who do not lean are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Who is particularly concerned about the issue of genetically modified foods?

One-in-six (16%) U.S. adults say they care a great deal about the issue of GM foods. Some 37% care some about this issue. About three-in-ten Americans do not care too much (31%) and 15% do not care at all about the GM foods issue.

Those who care a great deal about the GM foods issue are also more likely to follow

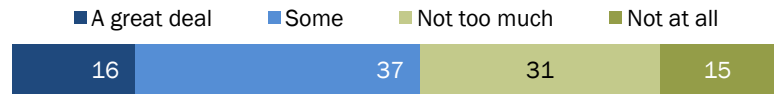
news on this topic. Some 68% of those who are engaged with this issue follow news on the topic very or somewhat closely. In contrast, only about one-quarter of other Americans follow news on GM foods somewhat or very closely.

Those who care a great deal about this issue are more likely to report greater awareness about the topic. Some 68% of those who care deeply about this issue say they have heard or read a lot about GM foods. In contrast, 28% of those who care some and just 15% of those do not care at all or not too much about this issue say they have heard or read a lot about GM foods.

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### One-in-six Americans care a great deal about the GM foods issue

*% of U.S. adults who say they care \_\_\_\_\_ about the issue of genetically modified foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Americans' eating choices tend to be linked with their degree of concern about the issue of GM foods.

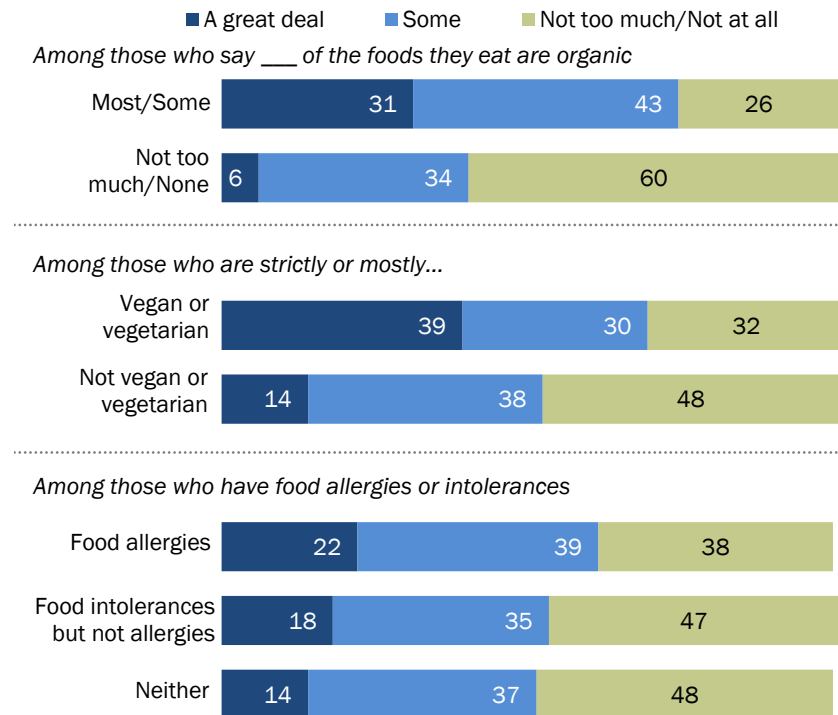
About three-in-ten (31%) frequent consumers of organic foods care a great deal about the GM foods issue, compared with just 6% among those who eat little organic foods.

Vegans/vegetarians are more likely to care about the issue of GM foods; 39% of people who are at least mostly vegan or vegetarian care a great deal about this issue.

People with food allergies are slightly more inclined to care about the issue of GM foods (22% care a great deal compared with 14% among those with no allergies or intolerances to food).

## Americans who eat more organic and veggie-based diets are more likely to care about the GM foods issue

*% of U.S. adults who care \_\_\_\_ about the issue of genetically modified foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Women are more likely to care a great deal about the GM foods issue than men (20% vs. 12%).

There are only modest differences in concern about this issue by other demographic and educational groups. Older adults, ages 65 and older, are a bit less likely than their younger counterparts to care deeply about the issue of GM foods. Those with high school degrees or less are a bit less likely than other educational groups to care about the issue of GM foods. And those with family incomes under \$30,000 annually have a bit less concern about this issue than those with higher incomes.

There are no differences by political party in people's degree of concern about the issue of GM foods.

## Americans concerned about the issue of GM foods are a diverse group

*% of U.S. adults who care a great deal, some, not too much/none about the issue of genetically modified foods*

	<b>A great deal</b>	<b>Some</b>	<b>Not too much/ Not at all</b>
U.S. adults	16%	37%	46%
Men	12	35	53
Women	20	39	40
18-29	18	37	44
30-49	18	39	43
50-64	15	40	45
65+	13	29	57
White	16	38	46
Black	17	31	50
Hispanic	17	38	45
Postgraduate degrees	17	40	43
College degrees	22	38	39
Some college	17	39	43
H.S. degrees or less	12	34	54
<i>Family income</i>			
\$100K or more	17	37	46
\$75K-\$99,999	16	38	46
\$50K-\$74,999	23	35	40
\$30K-\$49,999	17	41	41
Under \$30K	14	34	52
<i>Party affiliation</i>			
Republican	16	34	49
Democrat	16	39	44

Note: Respondents who did not give an answer are not shown. Whites and blacks include only non-Hispanics; Hispanics are of any race. Republicans and Democrats include independents and others who "lean" toward the parties. Respondents who do not lean to a political party not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Public expectations about the effects of GM foods are mixed; some worry that GMOs will affect environment as well as public health

Americans have mixed expectations about the likely effects from genetically modified foods, with many expressing both optimism and pessimism about consequences of GM foods.

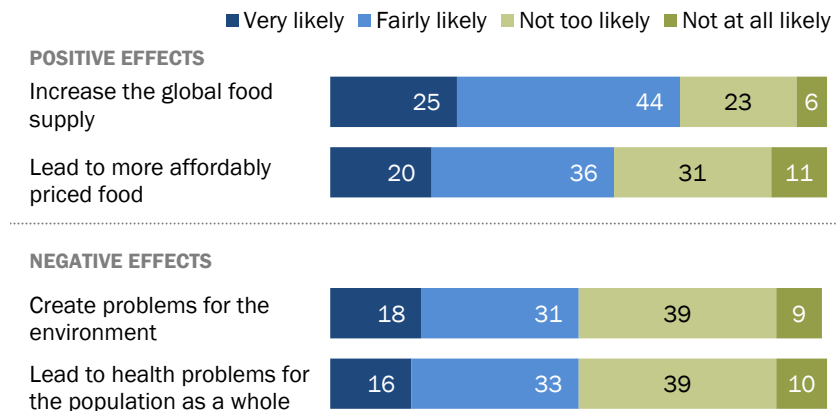
Most of the public expects GM foods to increase the global food supply. One-quarter say this is very likely and an additional 44% say this is fairly likely. A somewhat smaller majority says GM foods are very (20%) or fairly likely (36%) to result in more affordably priced foods.

At the same time, about half of Americans say

environment and health problems will result from GM foods. Some 18% say it is very likely and 31% say it is fairly likely that GM foods will create problems for the environment. And similar shares say it is very (16%) or fairly likely (33%) that GM foods will lead to health problems for the population as a whole.

### Americans think both positive and negative effects of genetically modified foods are likely

*% of U.S. adults who say how likely it is that genetically modified foods will ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## People who are most concerned about the GM foods issue are far more likely to foresee environmental and health problems because of these foods

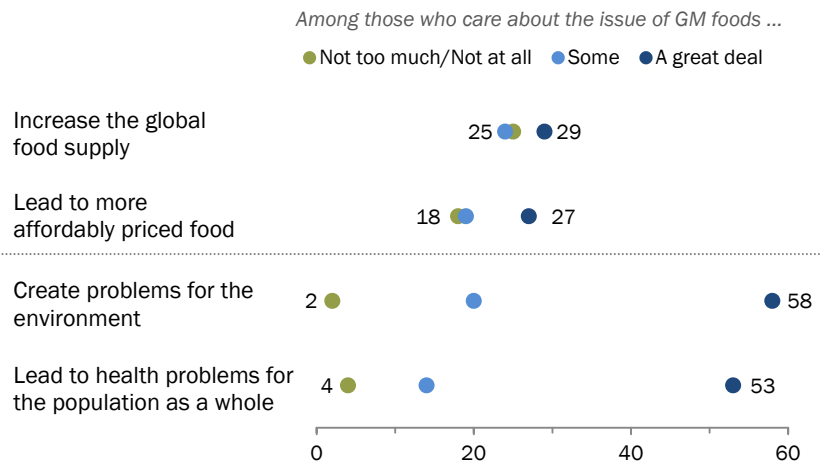
People who are more personally concerned about the issue of GM foods are especially worried that such foods will lead to health and environmental problems for society. Some 58% of those with deep personal concern about the GM foods issue say it is very likely that these foods will lead to problems for the

environment; a similar share (53%) expects GM foods to result in health problems for the population as a whole. In contrast, majorities of those who are less engaged with this issue say environmental and health problems stemming from GM foods are not too or not at all likely.

These expectations of risks for society from GM foods are in keeping with the wide differences among these groups in their views of the health risks associated with eating GM foods.

### Americans who care a great deal about GM foods issue expect negative effects from these foods

% of U.S. adults who say genetically modified foods will very likely ...



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## More men expect positive effects from GM foods; more women expect negative effects

Men and women have somewhat different expectations for GM foods. Men are more optimistic, while women are more pessimistic about the likely impact of GM foods on society.

Men are more inclined than women to expect GM foods to increase the global food supply (29% of men vs. 21% of women who say this is very likely). Similarly men are more likely than women to say that GM foods will lead to lower food costs (25% vs. 16% who say this is very likely). But, women are more likely than men to think GM foods will create problems for the environment (21% of women vs. 14% of men who say this is very likely) and to bring health problems for the population as a whole (20% of women vs. 11% of men who say this is very likely).

These modest differences in expectations by gender are in keeping with other studies. For example, a [2016 Pew Research Center study](#) found women are more wary than men of emerging biomedical technologies to enhance human abilities, and a [2014 survey](#) found women less likely to expect future technological changes, in general, to make people's lives better.

There are modest generational differences in expected effects from GM foods. Adults ages 65 and older are less pessimistic than their younger counterparts about the likely effects of GM foods for society; more adults ages 65 and older say harm to the environment or to public health from GM foods is not at all or not too likely to occur. But younger adults, especially those ages 18 to 29, are more likely to think that GMOs will result in more affordably priced foods.

Those with high science knowledge are more optimistic in their expectations that GM foods will bring benefits to society. Roughly four-in-ten (41%) of those with high science knowledge say it is

### Men are more likely to say GM foods will make food more affordable, abundant

*% of U.S. adults who say genetically modified foods will ...*

■ Very likely ■ Fairly likely ■ Not too likely ■ Not at all likely

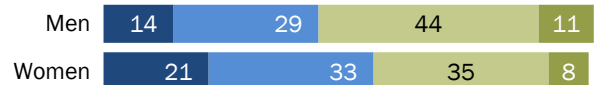
#### Increase the global food supply



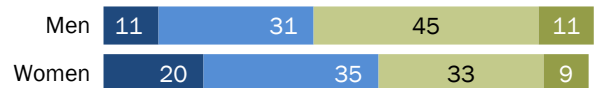
#### Lead to more affordably priced food



#### Create problems for the environment



#### Lead to health problems for the population as a whole



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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very likely that GM foods will increase the global food supply. And 35% of those with high science knowledge say it is very likely GM foods will lead to more affordably priced foods. In comparison, just 11% of those low in science knowledge say GM foods are very likely to increase the global food supply and 13% say GM foods are very likely to bring more affordably priced food.

Education, which is closely linked with levels of science knowledge, shows a similar pattern. Postgraduate degree-holders are more inclined to say GM foods are very likely to increase the global food supply and to lead to more affordably priced food than those with less education.

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## People with high science knowledge see more benefits ahead from GM foods

*% of U.S. adults who say genetically modified foods will very likely ...*

	Among those with ___ science knowledge		
	High	Medium	Low
Increase the global food supply	41	27	11
Lead to more affordably priced food	35	18	13
Create problems for the environment	19	20	13
Lead to health problems for the population as a whole	11	20	12

Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Americans hold mixed views of scientists and the research connected with GM foods

Public views of scientists and their understanding about the health risks and benefits of GM foods are mixed and, often, skeptical. Most Americans perceive considerable disagreement among scientific experts about whether or not GM foods are safe to eat. While most people trust scientists more than they trust each of several other groups to give full and accurate information about the health effects of GM foods, only a minority of the public says they have a lot of trust in scientists to do this. At the same time, most Americans say that scientists should have a major role in policy decisions about GM foods, but so, too, should small farm owners and the general public. Fewer Americans say that food industry leaders should play a major role at the policy-making table.

But views of scientists connected with GM foods are often similar among those who with deep personal concern about the issue of GM foods and those with less concern. Differences are more pronounced between these groups when it comes to views of industry influence on scientific research findings and trust in food industry leaders to give full and accurate information about the health effects of GM foods. In other respects, people with deeper concern about this issue vary only modestly from other Americans in their views of scientists and the scientific research on GM foods.

People who tend to know more about science topics, in general, tend to have more positive views of scientists' understanding and see the influences on their research findings about the health effects of GM foods in a positive light.

### Relatively few Americans perceive broad scientific consensus on safety of GM foods

A recent report from the National Academies of Sciences, Engineering and Medicine concluded there was no persuasive evidence that genetically engineered crops have caused health or environmental problems.<sup>19</sup> Other reviews of the scientific literature have found almost all researchers working on this topic think GM foods are as safe as non-GM foods.<sup>20</sup> Similarly, [a 2014 Pew Research Center survey](#) found 88% of members of the American Association for the Advancement of Science (AAAS) and 92% of working Ph.D. biomedical scientists said it is safe to eat genetically modified foods.

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<sup>19</sup> The National Academies of Sciences, Engineering and Medicine. 2016. [Genetically Engineered Crops: Experiences and Prospects](#), page 157. Also see the review of research from the European Commission, [A decade of EU-funded GMO research \(2001-2010\)](#).

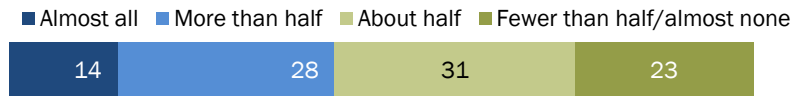
<sup>20</sup> In [a 2013 review of the scientific literature on the safety of GM crops](#), Alessandro Nicolia, Alberto Manzo, Fabio Veronesi and Daniele Rossellini found no "significant hazards directly connected with the use of GE crops" even though the public discourse continues.

But in the public's view, scientists appear divided over the safety of GM foods. Only a small minority (14%) of Americans say almost all scientists agree that GM foods are safe. Another 28% say more than half of scientists say that GM foods are safe. But 53% of U.S. adults say that half or fewer scientists agree that GM foods are safe to eat.

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### Few Americans believe almost all scientists agree on safety of genetically modified foods

*% of U.S. adults who say \_\_\_\_ of scientists say GM foods are safe to eat*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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People's own views about the safety of foods with GM ingredients are closely related to their perceptions of scientific consensus. For example, those who view GM foods as worse for health are especially inclined to say that there is little agreement among scientists about the safety of GM foods. Past Pew Research Center studies have found a similar pattern when it comes to perceptions of scientific consensus and beliefs about [climate change](#) as well as beliefs about [evolution](#).

Across all levels of concern about this issue, few see broad consensus among scientists that GM foods are safe to eat. Those who care a great deal about this issue are a bit more likely to see majority consensus among scientists (50% compared with 37% of those who care some and 43% of those who care not too much or not at all about the GM foods issue).

Similarly, people who have heard or read a lot about GM foods are far more likely than those who have heard or read nothing about this issue to see consensus among scientists that GM foods are safe.

## A minority of Americans say scientists understand the health effects of GM foods very well

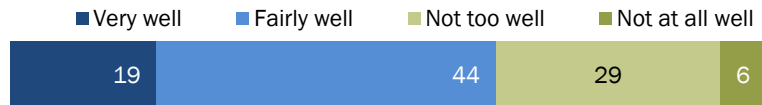
Most of the public has at least some reservations about scientists' understanding of the health effects of GM foods. Only 19% of Americans say scientists understand the health risks and benefits of eating GM foods very well, while an additional 44% say scientists understand this fairly well. About one-third of Americans say scientists understand the risks and benefits of eating GM foods not too well or not at all well. For comparison, in a [2014 Pew Research Center survey](#) two-thirds (67%) of U.S. adults said that scientists generally do not have a clear understanding of the health effects of GM crops.

Those who perceive broad scientific consensus on the safety of GM foods are more likely to think scientists understand this topic. Some 45% of those who think almost all scientists agree that GM foods are safe to eat also say scientists understand this topic very well.

Paradoxically, people who are care a great deal about the issue of GM foods tend to say that scientists understand the health risks and benefits of eating GM foods very well (32%). By

### Roughly one-in-five Americans say scientists understand health effects of GM foods very well

*% of U.S. adults who say scientists understand the health risks and benefits of eating genetically modified foods ...*



Note: Respondents who did not give an answer are not shown.  
Source: Survey conducted May 10-June 6, 2016.  
"The New Food Fights: U.S. Public Divides Over Food Science"

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### Perceptions of scientific understanding a bit more positive among those concerned about GM foods issue

*% of U.S. adults who say scientists understand the health risks and benefits of eating genetically modified foods ...*

	Very well	Fairly well	Not too well	Not at all well
<i>Among those who ... about the issue of GM foods</i>				
Care a great deal	32	30	28	10
Care some	18	46	31	3
Care not too much/None	15	48	27	7
<i>Among those who say "my main focus is on eating healthy and nutritious" describes them ...</i>				
Very well	29	32	29	9
Fairly well	16	46	30	5
Not too well/Not at all well	16	49	27	8

Note: Respondents who did not give an answer are not shown.  
Source: Survey conducted May 10-June 6, 2016.  
"The New Food Fights: U.S. Public Divides Over Food Science"

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comparison, fewer people who do not care at all or not too much about this issue give scientists high marks for their understanding of the health effects of GM foods. Although, roughly similar shares of each group say that scientists understand the effects of GM foods at least fairly well. A similar pattern occurs among those focused on eating healthy and nutritious; more among this group (29%) say that scientists understand the effects of GM foods very well, compared with 16% of those who are less focused on healthy eating.

As noted above, those who care a great deal about the issue of GM foods are also a bit more likely than others to see scientists as agreeing that GM foods are generally safe to eat.

### Americans are most trusting of scientists, small farm owners for information about the effects of GM foods

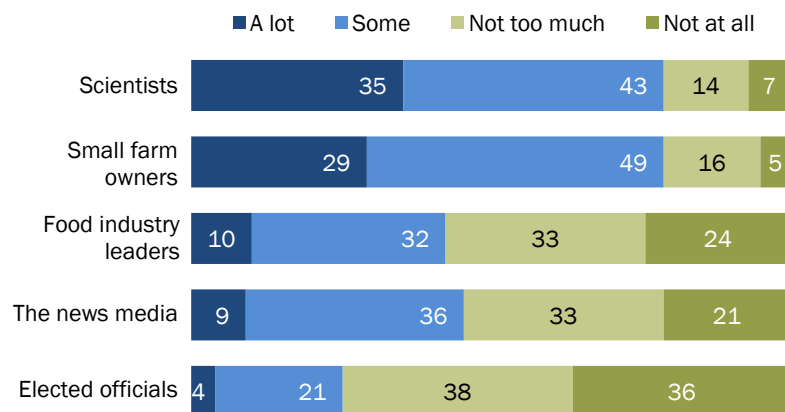
Americans are, comparatively speaking, more trusting of information from scientists and small farm owners on the safety of GM foods than they are of information from food industry leaders, the news media or elected officials.

In absolute terms, however, Americans are somewhat skeptical of information from scientists. A minority of 35% say they trust scientists a lot to give full and accurate information about the health effects of eating GM foods. About one-in-five say they do not trust information from scientists at all or not too much. Another 43% of U.S. adults report some trust in scientists' information.

A similar share of Americans trust small farm owners a lot (29%) or some (49%) to give full and accurate information about the health effects of GM foods. Public trust in information on the effects of GM foods from the news media, food industry leaders

### Americans more trusting of information about GM foods from scientists, small farm owners

*% of U.S. adults who say they trust each of these groups \_\_\_ to give full and accurate information about the health risks and benefits of eating genetically modified foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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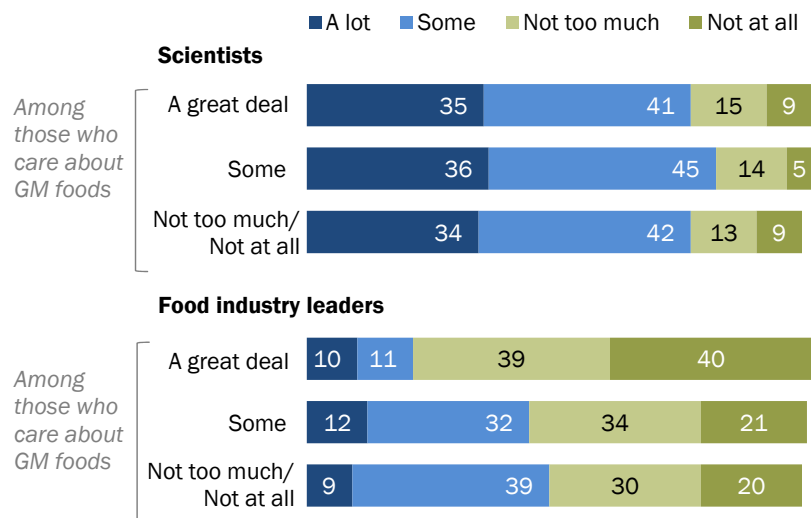
and elected officials is much lower. No more than one-in-ten Americans trust each of these groups a lot; majorities say they have no trust or not too much trust in the news media, food industry leaders and elected officials to give full and accurate information about the health effects of GM foods.

Those who have heard or read a lot about GM foods are more likely to trust scientists (44% of this group say they trust scientists a lot, compared with 20% among those who say they have heard or read nothing about GM foods.) People who care more deeply about this issue express a similar level of trust in scientists as those with less concern about the issue of GM foods.

However, people deeply concerned about the issue of GM foods are especially skeptical of information from food industry leaders. Just 21% of those deeply concerned about this issue trust food industry leaders at least some to provide full and accurate information about the effects of GM foods, compared with 48% among those who do not care about the issue of GM foods at all or not too much. Fully half of those who care deeply about the issue of GM foods (50%) say that scientific findings about GM foods are influenced by the researchers' desires to help their industries "most of the time." In contrast, 22% of those with little concern about the issue of GM foods say the same.

### Trust in information from food industry leaders is lower for those deeply concerned about issue of GM foods

*% of U.S. adults who say they trust each of these groups \_\_\_\_ to give full and accurate information about the health effects of GM foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Three-in-ten Americans say research on GM foods is often influenced by the best available evidence; a similar share says other motivations influence researchers

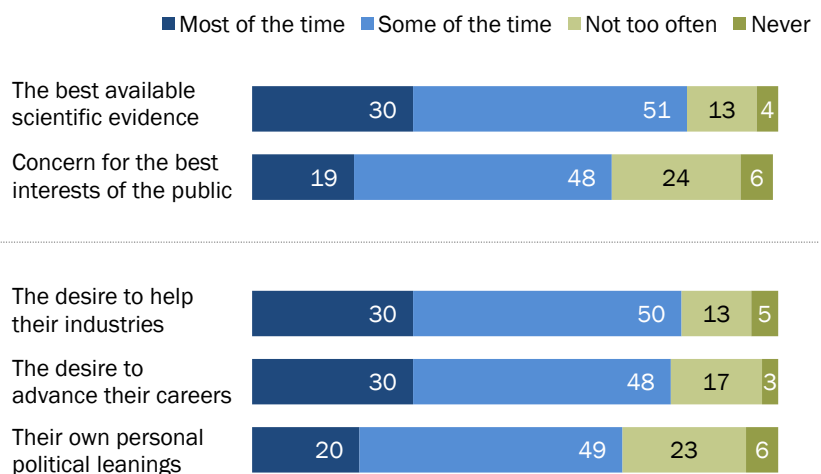
The public offers a mixed assessment of what influences research from scientists on GM foods. Many Americans are skeptical that the best available evidence commonly influences research findings on GM foods. Three-in-ten Americans say research findings are influenced by the best available evidence most of the time, about half (51%) say this occurs some of the time and 17% say the best available evidence rarely or never influences research findings about GM foods.

At the same time, three-in-ten Americans (30%) say desires of scientists to help their industries influence the research findings on GM foods most of the time. Half (50%) say this occurs some of the time.

Perceptions that researchers' career interests influence the research findings are similar; 30% say such motivations influence the research most of the time and 48% say this occurs some of the time.

### Americans see a mix of influences behind research findings on GM foods

*% of U.S. adults who say research findings from scientists about genetically modified foods are influenced by each of these motives ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"The New Food Fights: U.S. Public Divides Over Food Science"

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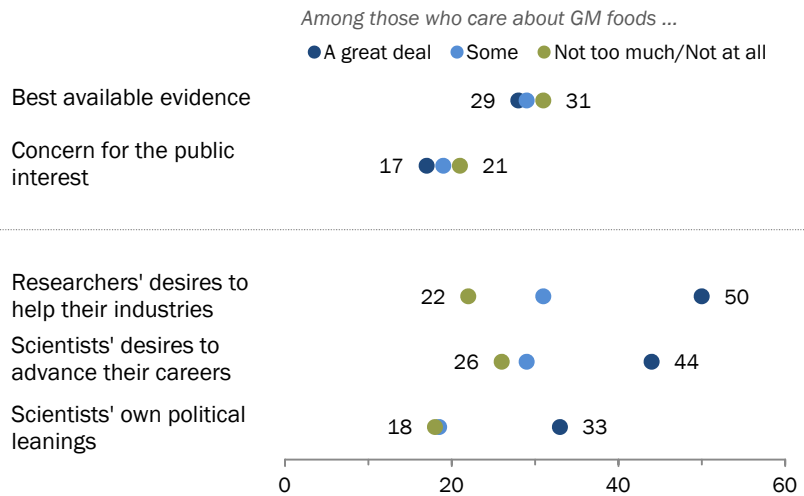
People more engaged in the issue of GM foods are particularly skeptical about the possibility of industry influence on scientific research findings. Half (50%) of those who care a great deal about the GM foods issue say researchers' desires to help their industries influence research on GM foods most of the time. Those less engaged in the issue of GM foods are much less inclined to say that industry interests often influence science research.

People with a deeper personal concern about the issue of GM foods are similarly more inclined than other Americans to say that scientists' desires for career advancements or their own political leanings often influence their research findings about GM foods.

But level of concern about the issue of GM foods is unrelated to views that the best available evidence influences scientists' research findings. A minority of 29% of those who care a great deal about this issue says the best evidence influences research findings about GM foods most of the time, as do similar shares of those with less concern about the GM foods issue.

## Half of those who care deeply about GM food issue think industry interests affect research findings most of the time

*% of U.S. adults who say most of the time scientists' research findings about genetically modified foods are influenced by each of these motives*



Note: Respondents who gave other responses or who did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016.

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## People with higher science knowledge tend to hold more positive views of scientists and their research findings on GM foods

Although there are only modest differences in perceptions of risk from eating GM foods among people with high, medium or low levels of science knowledge, those with higher science knowledge tend to assess scientists and their research on GM foods more favorably than those with less knowledge.

Those high in science knowledge, based on a nine-item index, are more likely to see scientists as being in agreement that GM foods are safe; 64% of those with high science knowledge say that almost all/more than half of scientists agree about this, compared with 28% of those with low science knowledge.

Americans with high science knowledge are especially trusting of information from scientists on the effects of eating GM foods. Roughly half of those with high science knowledge (51%) trust information from scientists a lot, while only about one-in-five (18%) of those with low science knowledge say the same.

### People with more science knowledge see scientists connected with GM foods in a more positive light

% of U.S. adults

	Among those with ___ science knowledge		
	High	Medium	Low
<i>Perception of scientific consensus</i>			
Almost all/more than half of scientists agree GM foods are safe to eat	64	41	28
<i>Scientists understanding</i>			
Scientists understand the health effects of GM foods very well	20	20	16
<i>Information on health risks and benefits of GM food</i>			
Trust scientists a lot to give full and accurate information	51	38	18
Trust food industry leaders a lot to give full and accurate information	4	11	14
<i>Research findings influenced by ___ most of the time</i>			
Best available evidence	50	30	14
Best interests of public	34	19	9
Researchers' desires to help their industries	32	37	16
Scientists' desires to advance their careers	23	37	24
Scientists' own political leanings	15	25	16

Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"The New Food Fights: U.S. Public Divides Over Food Science"

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People with high science knowledge are also more inclined to think that research on GM foods reflects the best available evidence most of the time (50% of those with high science knowledge say this, compared with 14% of those with low science knowledge).

Like other Americans, those with high science knowledge have low trust in information from food industry leaders to give full and accurate information about the effects of GM foods. And, those with high (32%) and medium (37%) science knowledge say that researchers' desires to help industries they work with or work for influence research findings most of the time. This compares with 16% among adults with low science knowledge.

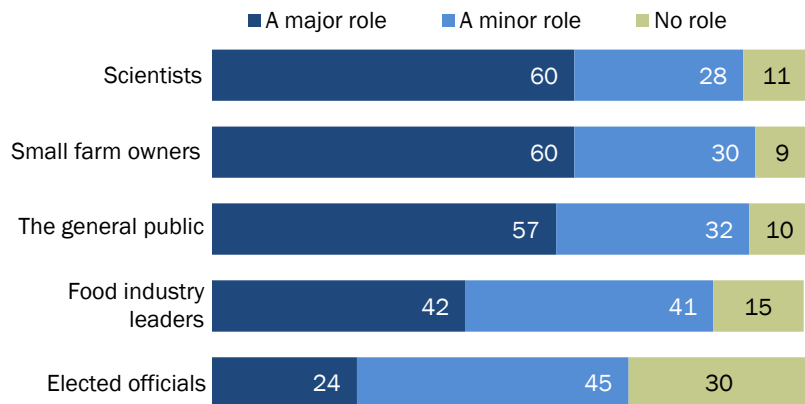
### Most Americans say scientists should have a role in policymaking on GM foods

Despite some skepticism among the public about scientists working on GM foods, most of the public wants scientists to have a seat at the policymaking table. Six-in-ten U.S. adults (60%) say scientists should have a major role in GM policy decisions and 28% say scientists should have a minor role. Just 11% think scientists should have no role in policy decisions.

Majorities also support major roles for small farmers and the general public in policy decisions related to GM foods. Six-in-ten (60%) Americans say small farmers should have a major role in policy decisions about GM foods and a similar share, 57%, says the general public should have a major role. Fewer Americans say that food industry leaders should have a major role in policy decisions related to GM foods (42%). Americans are least inclined to say elected officials should have a major role in GM food policy (24%); 45% say

### Majorities of Americans say scientists, small farmers and the public should have major roles in GM food policy decisions

*% of U.S. adults who say each of these groups should have \_\_\_ in making decisions about policy issues related to genetically modified foods*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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elected officials should have a minor role and 30% say they should have no role in policy decisions about GM foods.

People who are deeply concerned about the issue of GM foods give higher priority to the general public in policy decisions. Fully 78% among this group say the general public should have a major role in policy decisions. A smaller majority says scientists should have a major role in GM food policy (66%). By comparison, people who are not at all concerned or not too concerned about the issue of GM foods give higher priority to scientists in influencing policy decisions.

### People deeply concerned about GM food issues prioritize a role for the public in policymaking

*% of U.S. adults who say each of these groups should have a major role in making decisions about policy issues related to genetically modified foods*

Among those who care about the issue of GM foods ...		
A great deal	Some	Not too much/Not at all
The general public 78%	Scientists 64%	Scientists 55%
Small farm owners 73	The general public 61	Small farm owners 54
Scientists 66	Small farm owners 61	The general public 47
Food industry leaders 41	Food industry leaders 43	Food industry leaders 41
Elected officials 39	Elected officials 26	Elected officials 17

Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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## Assessments of media coverage on GM foods vary with degree of concern about the issue

Few Americans follow news about GM foods closely; just 6% of Americans say they follow news about GM foods very closely. Some 65% do not follow news about GM foods at all or not too closely, and another 28% say they follow such news somewhat closely.

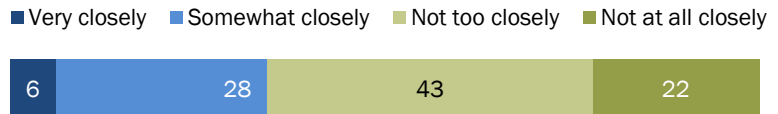
Overall, more Americans give negative than positive assessments of how the media cover GM foods. Some 56% of Americans say the news media are doing a very or somewhat bad job, while 41% say the news media are doing a very or somewhat good job.

People who follow news about GM foods very or somewhat closely are more divided in their assessments of news coverage on GM foods (52% say the news media do a good job and 47% say the news media do a bad job).

Ratings of media coverage of GM foods is roughly similar among those with higher and lower concern about the issue

### Few Americans follow news about genetically modified foods very closely

*% of U.S. adults who say they follow news about GM foods ...*



Note: Respondents who did not give an answer are not shown.

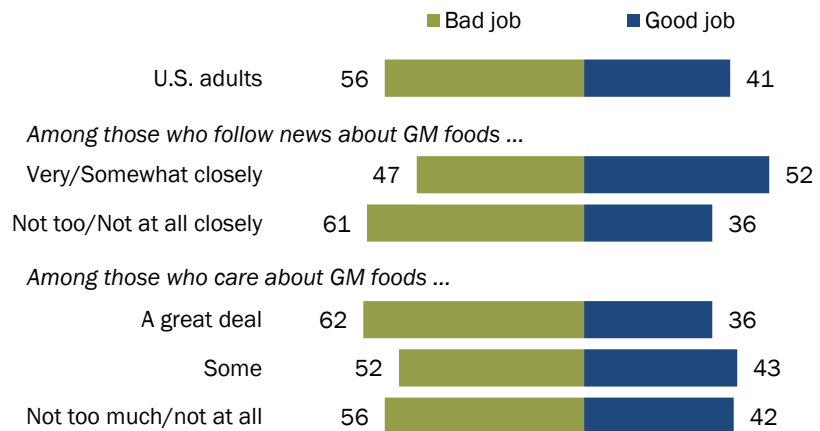
Source: Survey conducted May 10-June 6, 2016.

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### A minority of Americans say the media do a good job covering issues about GM food

*% of U.S. adults who say the news media do a \_\_\_\_ in covering issues about genetically modified foods*



Note: Very good/bad job and somewhat good/bad job responses are combined.

Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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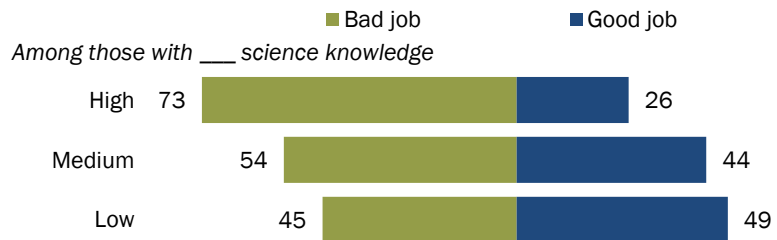
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of GM foods.

Americans with more science knowledge are especially critical of media coverage on GM foods. Some 73% of those with high science knowledge say the news media do a bad job, while only about one-quarter (26%) say the news media do a good job covering GM food issues. By comparison, those with low science knowledge are closely split in their views of media coverage on these issues; 49% say the media do a good job, 45% say they do a bad job covering these issues.

### Americans with more science knowledge think media do bad job covering GM food issues

*% of U.S. adults who say the news media do a \_\_\_ in covering issues about genetically modified foods*



Note: Very good/bad job and somewhat good/bad job responses are combined.

Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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The Pew Research Center survey also included two additional questions exploring people's views about the balance of news coverage on GM foods.

Overall, four-in-ten

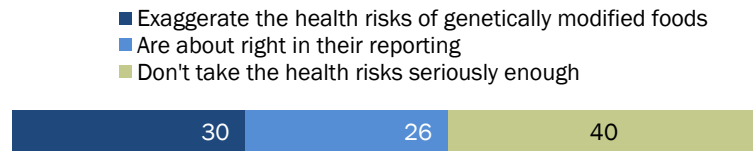
Americans (40%) say the news media do not take the health risks of GM foods seriously enough. A slightly smaller share (30%) thinks the news media exaggerate the health risks of GM foods. Roughly one-quarter (26%) say the news media are about right in their reporting.

Further, 43% of U.S. adults say the news media give skeptics of the safety of GMOs too little attention. A smaller share (22%) says the news media give too much attention to skeptics. About one-third (32%) say the news media give skeptics of the safety of GMOs about the right amount of attention.

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### Americans are closely divided in how they see the balance of news coverage on GM foods

*% of U.S. adults who say the news media generally ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

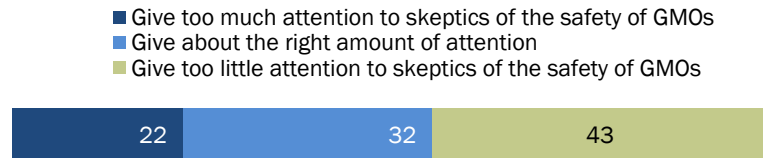
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### 43% of Americans see too little news coverage for skeptics of the safety of genetically modified foods

*% of U.S. adults who say the news media generally ...*



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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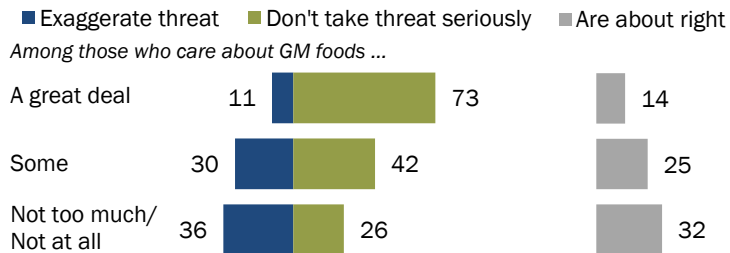
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People's level of concern with the issue of GM foods is closely related to their views about media coverage. Fully 73% of those who care a great deal about the issue of GM foods say the news media do not take the health threat from GMOs seriously enough. Those with little personal concern about this issue are roughly equally divided between whether the news media exaggerate the health threat, do not take the health threat seriously enough or are about right in their reporting.

Views about media attention given to skeptics of the safety of GMOs follow a similar pattern. Some 73% of those who care a great deal about the issue of GM foods say the news media give too little attention to the skeptics of the safety of GMOs. In contrast, among those with no or not too much personal concern about the GM food issue, 27% say the news media give skeptics of the safety of GMOs too little attention.

## Most Americans concerned about GM foods say news media do not take threat seriously enough

*% of U.S. adults who say the news media generally \_\_\_ in reporting on genetically modified foods*



Notes: Respondents who did not answer not shown.

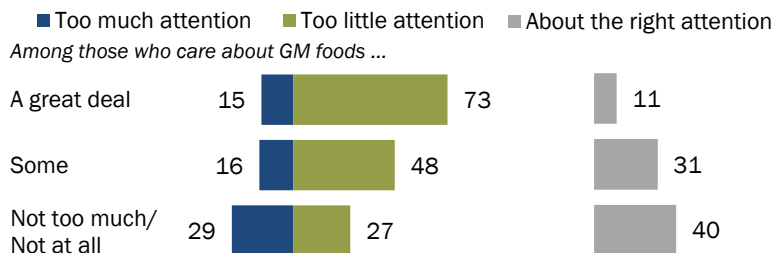
Source: Survey conducted May 10-June 6, 2016.

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## People more concerned about GM foods think skeptics about GM safety get too little news coverage

*% of U.S. adults who say the news media generally give \_\_\_ to skeptics of the safety of genetically modified foods*



Notes: Respondents who did not answer not shown.

Source: Survey conducted May 10-June 6, 2016.

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## About this report

This is the second in a series of reports that details public views on science and scientists in areas that connect with Americans' daily lives. An [earlier report](#) focused on climate, energy and the environment including the relationship between people's beliefs about these issues and their behaviors related to the environment in everyday life.

## Acknowledgments

This report is made possible by the Pew Charitable Trusts. This report is a collaborative effort based on the input and analysis of the following individuals. Find related reports online at:

[pewresearch.org/science](http://pewresearch.org/science)

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### Outside advisers

A number of outside experts helped guide the research in this report. We received valuable advice from John Besley, associate professor and Ellis N. Brandt Chair in Public Relations at Michigan State University; Karlyn Bowman, senior fellow and research coordinator at the American Enterprise Institute; Gordon Gauchat, assistant professor of sociology at the University of Wisconsin-Milwaukee; Dan Kahan, Elizabeth K. Dollard Professor of Law at Yale University; and Carolyn Miller, a veteran survey researcher who is currently a senior program officer at the Robert

Wood Johnson Foundation. While the design and analysis of the project was guided by our consultations with these advisers, Pew Research Center is solely responsible for the design, interpretation and reporting of the data.

## Methodology

This report is drawn from a survey conducted as part of the American Trends Panel (ATP), a nationally representative panel of randomly selected U.S. adults living in households, created by Pew Research Center. Respondents who self-identify as internet users and who provided an email address participate in the panel via monthly self-administered web surveys, and those who do not use the internet or decline to provide an email address participate via the mail. The panel is being managed by Abt SRBI.

Data in this report are from the May wave of the panel, conducted from May 10 to June 6, 2016. Most findings in this report were conducted among 1,480 respondents (1,330 by web and 150 by mail) who were randomly assigned to complete one of three forms or sets of questions on the survey. The margin of sampling error for the sample of 1,480 respondents is plus or minus 4.1 percentage points.

Members of the American Trends Panel were recruited from two large, national landline and cellphone random-digit-dial (RDD) surveys conducted in English and Spanish. At the end of each survey, respondents were invited to join the panel. The first group of panelists was recruited from the 2014 Political Polarization and Typology Survey, conducted from Jan. 23 to March 16, 2014. Of the 10,013 adults interviewed, 9,809 were invited to take part in the panel and a total of 5,338 agreed to participate.<sup>21</sup>

<sup>21</sup> In total, 83% of non-internet users were invited to join the panel.

## Margins of error

	Sample size	Margin of error in percentage points
Full sample in form 2	1,480	+/- 4.1
Men	703	+/- 5.9
Women	777	+/- 5.6
White	1,133	+/- 4.6
Black	130	+/- 13.7
Hispanic	109	+/- 15.0
18-29	178	+/- 11.7
30-49	424	+/- 7.6
50-64	427	+/- 7.6
65+	449	+/- 7.4
Postgraduate degrees	338	+/- 8.5
College graduates	408	+/- 7.7
Some college	481	+/- 7.1
H.S. degrees or less	253	+/- 9.8
<i>Party affiliation</i>		
Republican	679	+/- 6.0
Democrat	754	+/- 5.7

Note: Based on those completing form 2. Whites and blacks include only non-Hispanics; Hispanics are of any race. Republicans and Democrats include independents and others who "lean" toward the parties.

The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.

Source: Survey conducted May 10-June 6, 2016.

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The second group of panelists was recruited from the 2015 Survey on Government, conducted from Aug. 27 to Oct. 4, 2015. Of the 6,004 adults interviewed, all were invited to join the panel, and 2,976 agreed to participate.<sup>22</sup>

Participating panelists provided either a mailing address or an email address to which a welcome packet, a monetary incentive and future survey invitations could be sent. Panelists also receive a small monetary incentive after participating in each wave of the survey.

The ATP data were weighted in a multi-step process that begins with a base weight incorporating the respondents' original survey selection probability and the fact that in 2014 some panelists were subsampled for invitation to the panel. Next, an adjustment was made for the fact that the propensity to join the panel and remain an active panelist varied across different groups in the sample. The final step in the weighting uses an iterative technique that matches gender, age, education, race, Hispanic origin and region to parameters from the U.S. Census Bureau's 2014 American Community Survey. Population density is weighted to match the 2010 U.S. Decennial Census. Telephone service is weighted to estimates of telephone coverage for 2016 that were projected from the

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## Margins of error continued

	Sample size	Margin of error in percentage points
Full sample in form 2	1,480	+/- 4.1
<i>Care about the issue of GM foods</i>		
A great deal	280	+/- 9.3
Some	549	+/- 6.7
Not too much/Not at all	641	+/- 6.2
<i>Science knowledge</i>		
High	426	+/- 7.6
Medium	778	+/- 5.6
Low	276	+/- 9.4
Mostly/strictly vegan or vegetarian	124	+/- 14.0
Not vegan or vegetarian	1,349	+/- 4.3
Food allergies	201	+/- 11.0
Food intolerances (not allergies)	221	+/- 10.5
No food allergies/intolerances	1,052	+/- 4.8
<i>How much of what they eat is organic?</i>		
Most/some	677	+/- 6.0
Not too much/none	784	+/- 5.6
<i>Food orientation</i>		
Focused on eating healthy and nutritious	302	+/- 9.0
All others	1,167	+/- 4.6

Note: Based on those completing form 2.

The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.

Source: Survey conducted May 10-June 6, 2016.

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<sup>22</sup> Respondents to the 2014 Political Polarization and Typology Survey who indicated that they are internet users but refused to provide an email address were initially permitted to participate in the American Trends Panel by mail, but were no longer permitted to join the panel after Feb. 6, 2014. Internet users from the 2015 Survey on Government who refused to provide an email address were not permitted to join the panel.

July-December 2015 National Health Interview Survey. Volunteerism is weighted to match the 2013 Current Population Survey Volunteer Supplement. It also adjusts for party affiliation using an average of the three most recent Pew Research Center general public telephone surveys. Internet access is adjusted using a measure from the 2015 Survey on Government. Frequency of internet use is weighted to an estimate of daily internet use projected to 2016 from the 2013 Current Population Survey Computer and Internet Use Supplement. Sampling errors and statistical tests of significance take into account the effect of weighting. Interviews are conducted in both English and Spanish, but the Hispanic sample in the American Trends Panel is predominantly native born and English speaking.

The margins of error tables show the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups in the survey. Sample sizes and sampling errors for other subgroups are available upon request.

In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

The web component of the May wave had a response rate of 81% (4,091 responses among 5,053 web-based individuals in the panel); the mail component had a response rate of 77% (472 responses among 617 non-web individuals in the panel). Taking account of the combined, weighted response rate for the recruitment surveys (10.0%) and attrition from panel members who were removed at their request or for inactivity, the cumulative response rate for the May ATP wave is 2.9%.<sup>23</sup>

### **Questionnaire development and testing**

Pew Research Center developed the questionnaire for this study. The design of the questionnaire was informed by the results of nine separate pretests with a non-probability sample, as well as input from Pew Research Center staff and five external advisers on the project.

*Outside advisers:* Pew Research Center consulted with a number of expert advisers, listed in the acknowledgements section above, to inform the development of the questionnaire. We are grateful to this group for their input, though Pew Research Center bears full responsibility for the questionnaire design and analysis.

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<sup>23</sup> Approximately once per year, panelists who have not participated in multiple consecutive waves are removed from the panel. These cases are counted in the denominator of cumulative response rates.

## Survey questionnaire and topline

### 2016 PEW RESEARCH CENTER'S AMERICAN TRENDS PANEL

WAVE 17 May

FINAL TOPLINE

May 10 – June 6, 2016

FORM 2 N=1,480

#### ASK ALL FORMS [N=4,563]:

TALK Thinking about conversations you have had in person, on the phone, or by email, text message or social media, which of these topics, if any, have you talked about in the PAST 7 DAYS?

		<u>Selected</u>	<u>Not selected /No answer</u>
a.	The economy and job situation May 10-June 6,2016	46	54
b.	Severe storms May 10-June 6,2016	37	63
c.	Food and nutrition May 10-June 6,2016	47	53
d.	The 2016 presidential election campaign May 10-June 6,2016	66	34
e.	Health and medicine May 10-June 6,2016	53	47
f.	Sports May 10-June 6,2016	36	64
g.	None of these <b>[EXCLUSIVE PUNCH]</b> May 10-June 6,2016	7	93

#### OTHER QUESTIONS PREVIOUSLY RELEASED

##### ASK FORM 2 [N=1,480]:

FUD1 Compared with twenty years ago, do you think the eating habits of people in the U.S. are...

May 10-June 6

2016

29	More healthy today
54	Less healthy today
17	About the same
1	No answer

##### ASK FORM 2 [N=1,480]:

FUD2 Compared with twenty years ago, do you think people in the U.S. pay...

May 10-June 6

2016

54	More attention to eating healthy foods today
26	Less attention to eating healthy foods today
19	About the same amount of attention to eating healthy foods
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD3 Which of these do you think is a BIGGER PROBLEM in the U.S. today...

May 10-June 6

2016

12	The total amount of food people eat is too much
24	The types of food that people eat are not healthy enough
63	Both are equally big problems today
1	No answer

**ASK FORM 2 [N=1,480]:**FUD4 How important, if at all, do you think each of the following are when it comes to improving a person's chances of a long and healthy life?**[RANDOMIZE ITEMS]**

## a. Healthy eating habits

May 10-June 6

2016

72	Very important
25	Somewhat important
2	Not too important
1	Not at all important
*	No answer

## b. Genetics and hereditary factors

May 10-June 6

2016

47	Very important
45	Somewhat important
6	Not too important
1	Not at all important
1	No answer

## c. Getting enough physical exercise

May 10-June 6

2016

71	Very important
26	Somewhat important
1	Not too important
1	Not at all important
*	No answer

## d. Safe and healthy housing conditions

May 10-June 6

2016

61	Very important
34	Somewhat important
3	Not too important
1	Not at all important
1	No answer



**ASK FORM 2 [N=1,480]:**

FUD5 How often, if at all, do you hear or read news stories about the health effects of what people eat and drink?

May 10-June 6

2016

23	Every day
43	A few times a week
24	A few times a month
9	Less often than that
*	No answer

**ASK FORM 2 [N=1,480]:**

FUD6 How often, if at all, do you hear or read news stories that have advice about the health effects of what people eat and drink which CONFLICTS WITH earlier news stories on these topics?

May 10-June 6

2016

21	All the time
51	Some of the time
21	Not too often
5	Not at all
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD7 Which of these statements is closer to your own views, even if neither is exactly right?  
**[RANDOMIZE OPTIONS 1-2]**

May 10-June 6

2016

61	New research is constantly improving our understanding about the health effects of what people eat and drink, so it makes sense that these findings conflict with prior studies
37	Research about the health effects of what people eat and drink cannot really be trusted because so many studies conflict with each other
2	No answer

**ASK FORM 2 [N=1,480]:**

FUD8 Which of these statements is closer to your own views, even if neither is exactly right?  
**[RANDOMIZE OPTIONS 1-2]**

May 10-June 6

2016

25	It is difficult to know how to eat healthy because there is so much conflicting information
72	Even though new studies sometimes disagree with prior findings, the core ideas about how to eat healthy are pretty well understood
2	No answer

**ASK FORM 2 [N=1,480]:**

FUD9 How well, if at all, does each of these statements describe your overall approach to eating? **[RANDOMIZE ITEMS]**

a. I focus on the taste sensations of every meal

May 10-June 6

2016

23	Very well
53	Fairly well
20	Not too well
4	Not at all well
1	No answer

b. I usually eat whatever is easy and most convenient

May 10-June 6

2016

12	Very well
45	Fairly well
34	Not too well
9	Not at all well
1	No answer

c. My main focus is on eating healthy and nutritious

May 10-June 6

2016

18	Very well
55	Fairly well
23	Not too well
3	Not at all well
1	No answer

d. I eat when it is necessary, but I don't care very much about what foods I eat

May 10-June 6

2016

7	Very well
29	Fairly well
40	Not too well
23	Not at all well
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD10 When it comes to eating healthy, which of these statements best describes you?  
**[RANDOMIZE OPTIONS 1-2]**

May 10-June 6

2016

41	Most days I eat about what I should
58	Most days I should probably be eating healthier
1	No answer

**NO QUESTIONS FUD11 AND FUD12****ASK FORM 2 [N=1,480]:**

FUD13 Have you, personally, done any grocery or food shopping in the PAST 30 days, or haven't you done this?

May 10-June 6

2016

89	Yes, have done this
11	No, have not done this
1	No answer

**NO QUESTION FUD14****ASK FORM 2 [N=1,480]:**

FUD15 Thinking about the PAST 30 DAYS, how often did you or someone in your household do each of the following? **[RANDOMIZE ITEMS]**

- a. Buy organic food (Include fruits, vegetables, meat, fish, grains and packaged foods.)

May 10-June 6

2016

43	Several times
25	About once
25	Never
6	Not sure
1	No answer

- b. Buy fruits and vegetables grown in your local area

May 10-June 6

2016

46	Several times
26	About once
13	Never
14	Not sure
1	No answer

**FUD15 CONTINUED...**

c. Buy GMO-free food, which is food labeled as having no genetically modified ingredients

May 10-June 6

2016

27	Several times
17	About once
28	Never
27	Not sure
1	No answer

d. Decide whether or not to buy a food product because of what you read in the nutrition and ingredients label

May 10-June 6

2016

49	Several times
22	About once
20	Never
8	Not sure
1	No answer

**NO QUESTIONS FUD16-FUD18****ASK FORM 2 [N=1,480]:**

FUD19 How easy or hard is it to find organic foods in your local community? (Include fruits, vegetables, meat, fish, grains and packaged foods.)

May 10-June 6

2016

33	Very easy to find
48	Easy to find
15	Hard to find
3	Very hard to find
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD20 When organic foods COST MORE than conventionally-grown food, is the higher price an important reason in whether or not you buy it, or not an important reason in your buying decisions?

May 10-June 6

2016

72	Yes, an important reason
27	No, not an important reason
1	No answer

**ASK IF "BUY ORGANIC SEVERAL TIMES IN THE LAST 30 DAYS" OR "ONCE IN PAST 30 DAYS" (FUD15A=1,2) [N=1,032]:**

Thinking about the organic food that you bought in the past 30 days (Include fruits, vegetables, meat, fish, grains and packaged foods.)... **[RANDOMIZE ITEMS]**

FUD21 Was the following a reason that you bought organic food, or not?

a. To help the environment

May 10-June 6

2016

33	Yes, this was a reason
60	No, this was not a reason
7	No answer

b. To get healthier foods

May 10-June 6

2016

76	Yes, this was a reason
17	No, this was not a reason
6	No answer

c. Because it was the most convenient

May 10-June 6

2016

22	Yes, this was a reason
72	No, this was not a reason
7	No answer

**ASK FORM 2 [N=1,480]:**

FUD22 How much of the food you eat is organic?

May 10-June 6

2016

6	Most of it
34	Some of it
44	Not too much
15	None at all
1	No answer

**[RANDOMIZE ITEMS FUD23-FUD24]****ASK FORM 2 [N=1,480]:**

FUD23 Do you think organic fruits and vegetables generally ...

May 10-June 6

2016

32	Taste better than conventionally-grown foods
5	Taste worse than conventionally-grown foods
59	Have about the same taste as conventionally-grown foods
3	No answer

**ASK FORM 2 [N=1,480]:**

FUD24 Do you think organic fruits and vegetables generally ...

May 10-June 6

2016

55	Better for one's health than conventionally-grown foods
3	Worse for one's health than conventionally-grown foods
41	Neither better nor worse for one's health than conventionally-grown foods
1	No answer

**NO QUESTIONS FUD25-FUD26****ASK FORM 2 [N=1,480]:**

FUD27 When hosting a social gathering, how often, if at all, do you think the host should ask guests ahead of time if they have any food restrictions or food allergies?

May 10-June 6

2016

37	Always
25	Sometimes
21	Not too often
16	Never
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD28 How much, if at all, does it bother you when guests ask for special kinds of food options at a social gathering you are hosting?

May 10-June 6

2016

9	A lot
22	Some
37	Not too much
30	Not at all
2	No answer

**ASK FORM 2 [N=1,480]:**

FUD29 Do you consider yourself a vegan or vegetarian?

May 10-June 6

2016

3	I am a strict vegan or vegetarian
6	I am mostly vegan or vegetarian
91	I am neither vegan or vegetarian
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD30 Do you currently have any kind of food intolerance or food allergy?

*(Check as many as apply)* **[ITEMS IN ORDER SHOWN]**

<u>May 10-June 6, 2016</u>		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	I have a severe allergic reaction to some foods	5	95
b.	I have a mild or moderate allergic reaction to some foods	11	89
c.	I have an intolerance to some foods	17	83
d.	No, None of these <b>[EXCLUSIVE PUNCH]</b>	69	31

**ASK FORM 2 [N=1,480]:**FUD31 Thinking about your CLOSEST FAMILY AND FRIENDS, how many of them...  
**[RANDOMIZE ITEMS]**

a. Have a food intolerance or food allergy

May 10-June 6

2016

3	Most of them
21	Some of them
43	Only a few
33	None of them
*	No answer

b. Are vegan or vegetarian

May 10-June 6

2016

2	Most of them
10	Some of them
32	Only a few
55	None of them
1	No answer

c. Are focused on eating healthy and nutritious

May 10-June 6

2016

18	Most of them
50	Some of them
26	Only a few
6	None of them
*	No answer

**ASK FORM 2 [N=1,480]:**

Thinking about genetically modified foods, sometimes called GMOs...

FUD32 How much, if anything, have you heard or read about foods with genetically modified ingredients?

May 10-June 6

2016

29	A lot
52	A little
19	Nothing at all
*	No answer

**ASK FORM 2 [N=1,480]:**

FUD33A Do you think foods with genetically modified ingredients are generally...

May 10-June 6

2016

7	Better for your health than foods with no genetically modified ingredients
33	Worse for your health than foods with no genetically modified ingredients
32	Neither better nor worse for your health than foods with no genetically modified ingredients
26	Not sure
1	No answer

**IF NO ANSWER OR NOT SURE (FUD33A=8,99) [N=366]:**

FUD33B Even if you are not sure, which is closer to your views? Do you think foods with genetically modified ingredients are generally...

May 10-June 6

2016

11	Better for your health than foods with no genetically modified ingredients
22	Worse for your health than foods with no genetically modified ingredients
58	Neither better nor worse for your health than foods with no genetically modified ingredients
10	No answer



**COMBINED RESPONSES FUD33A AND FUD33B [N=1,480]:**

May 10-June 6

2016

10	Better for your health than foods with no genetically modified ingredients/lean
39	Worse for your health than foods with no genetically modified ingredients/lean
48	Neither better nor worse for your health than foods with no genetically modified ingredients/lean
3	No answer/Refused to lean

**ASK IF "WORSE FOR YOUR HEALTH" (FUD33A=2 OR FUD33B=2) [N=594]:**

FUD34 Do you think the health risk for people who eat genetically modified foods, over the course of their lifetime, is... **[FLIP ORDER OF RESPONSE OPTIONS HIGH TO LOW; LOW TO HIGH]**

May 10-June 6

2016

15	Very high
36	High
38	Medium
9	Low
2	Very low
*	No answer

**COMBINED RESPONSES FUD33A, FUD33B AND FUD34 [N=1,480]:**

May 10-June 6

2016

10	Better for your health than foods with no genetically modified ingredients/lean
39	Worse for your health than foods with no genetically modified ingredients/lean
6	Very high
14	High
15	Medium
3	Low
1	Very low
*	No answer
48	Neither better nor worse for your health than foods with no genetically modified ingredients/lean
3	No answer/Refused to lean

**ASK FORM 2 [N=1,480]:**

FUD35 How much do you, personally, care about the issue of genetically modified foods?

May 10-June 6

2016

16	A great deal
37	Some
31	Not too much
15	Not at all
*	No answer

**ASK FORM 2 [N=1,480]:**

FUD36 How much of the food you eat has genetically modified ingredients?

May 10-June 6

2016

11	Most of it
40	Some of it
31	Not too much
17	None at all
2	No answer

**ASK FORM 2 [N=1,480]:**FUD37 How likely is it that genetically modified foods will... **[RANDOMIZE ITEMS]**

a. Lead to more affordably-priced food

May 10-June 6

2016

20	Very likely
36	Fairly likely
31	Not too likely
11	Not at all likely
2	No answer

b. Lead to health problems for the population as a whole

May 10-June 6

2016

16	Very likely
33	Fairly likely
39	Not too likely
10	Not at all likely
2	No answer

**FUD37 CONTINUED...**

c. Create problems for the environment

May 10-June 6

2016

18	Very likely
31	Fairly likely
59	Not too likely
9	Not at all likely
2	No answer

d. Increase the global food supply

May 10-June 6

2016

25	Very likely
44	Fairly likely
23	Not too likely
6	Not at all likely
3	No answer

**ASK FORM 2 [N=1,480]:**

FUD38 What role, if any, do you think each of the following groups should have in MAKING DECISIONS ABOUT POLICY ISSUES related to genetically modified foods? **[RANDOMIZE ITEMS]**

a. Elected officials

May 10-June 6

2016

24	A major role
45	A minor role
30	No role
1	No answer

b. The general public

May 10-June 6

2016

57	A major role
32	A minor role
10	No role
1	No answer

**FUD38 CONTINUED...**

## c. Scientists

May 10-June 6

2016

60	A major role
28	A minor role
11	No role
1	No answer

## d. Food industry leaders

May 10-June 6

2016

42	A major role
41	A minor role
15	No role
2	No answer

## e. Small farm owners

May 10-June 6

2016

60	A major role
30	A minor role
9	No role
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD39

Thinking about what you have read and heard, how well do scientists understand the health risks and benefits of eating genetically modified foods?

May 10-June 6

2016

19	Very well
44	Fairly well
29	Not too well
6	Not at all well
2	No answer

**ASK FORM 2 [N=1,480]:**

FUD40 How much, if at all, do you trust each of the following groups to give full and accurate information about the health risks and benefits of eating genetically modified foods?

**[RANDOMIZE ITEMS]**

## a. Elected officials

May 10-June 6

2016

4	A lot
21	Some
38	Not too much
36	Not at all
1	No answer

## b. Scientists

May 10-June 6

2016

35	A lot
43	Some
14	Not too much
7	Not at all
1	No answer

## c. Food industry leaders

May 10-June 6

2016

10	A lot
32	Some
33	Not too much
24	Not at all
1	No answer

## d. The news media

May 10-June 6

2016

9	A lot
36	Some
33	Not too much
21	Not at all
1	No answer

**FUD40 CONTINUED...**

## e. Small farm owners

May 10-June 6

2016

29	A lot
49	Some
16	Not too much
5	Not at all
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD41 As far as you know, how many scientists say that genetically modified foods are safe to eat?

May 10-June 6

2016

14	Almost all
28	More than half
31	About half
16	Fewer than half
7	Almost none
5	No answer

**ASK FORM 2 [N=1,480]:**

FUD42 How often, if ever, do you think research findings from scientists about genetically modified foods are influenced by each of the following? **[RANDOMIZE ITEMS]**

## a. The desire to help the industries they work with or work for

May 10-June 6

2016

30	Most of the time
50	Some of the time
13	Not too often
5	Never
2	No answer

## b. Concern for the best interests of the public

May 10-June 6

2016

19	Most of the time
48	Some of the time
24	Not too often
6	Never
2	No answer

**FUD42 CONTINUED...**

## c. Their own personal political leanings

May 10-June 6

2016

20	Most of the time
49	Some of the time
23	Not too often
6	Never
2	No answer

## d. The desire to advance their career

May 10-June 6

2016

30	Most of the time
48	Some of the time
17	Not too often
3	Never
2	No answer

## e. The best available scientific evidence

May 10-June 6

2016

30	Most of the time
51	Some of the time
13	Not too often
4	Never
2	No answer

**ASK FORM 2 [N=1,480]:**

FUD43 How closely, if at all, do you follow news about genetically modified foods?

May 10-June 6

2016

6	Very closely
28	Somewhat closely
43	Not too closely
22	Not at all closely
1	No answer

**ASK FORM 2 [N=1,480]:**

FUD44 Overall, how would you rate the job news media do in covering issues about genetically modified foods?

May 10-June 6

2016

5	Very good job
37	Somewhat good job
38	Somewhat bad job
18	Very bad job
3	No answer

**NO QUESTION FUD45****[RANDOMIZE ITEMS BIO45-BIO46]****ASK FORM 2 [N=1,480]:**

FUD46 Do you think the news media generally... **[RANDOMIZE RESPONSE OPTIONS 1 AND 2 WITH 3 ALWAYS LAST]**

May 10-June 6

2016

30	Exaggerate the health risks of genetically modified foods
40	Don't take the health risks of genetically modified foods seriously enough
26	Are about right in their reporting
4	No answer

**ASK FORM 2 [N=1,480]:**

FUD47 Do you think the news media generally... **[RANDOMIZE RESPONSE OPTIONS 1 AND 2 WITH 3 ALWAYS LAST]**

May 10-June 6

2016

22	Give too much attention to skeptics of the safety of genetically modified foods
43	Give too little attention to skeptics of the safety of genetically modified foods
32	Give about the right amount of attention to skeptics of the safety of genetically modified foods
4	No answer



**ASK ALL FORMS:**

Here's a different kind of question. (If you don't know the answer, select "Not sure.") As far as you know...

**ASK ALL [N=4,563]:**

KNOSCT22 Which is the better way to determine whether a new drug is effective in treating a disease? If a scientist has a group of 1,000 volunteers with the disease to study, should she... **[RANDOMIZE OPTIONS 1-2]**

May 10-June 6

2016

65	Give the drug to half of them but not to the other half, and compare how many in each group get better ( <i>Correct</i> )
35	NET Incorrect/Not sure/No answer
14	Give the drug to all of them and see how many get better
20	Not sure
1	No answer

**[RANDOMIZE ITEMS KNOSCT23 TO KNOSCT34; KNOSCT22 ALWAYS FIRST]**

**ASK ALL:**

KNOSCT23 What gas is made as a consequence of burning fossil fuels? Is it ... **[RANDOMIZE OPTIONS 1-4]**

May 10-June 6

2016

68	Carbon dioxide ( <i>Correct</i> )
32	NET Incorrect/Not sure/No answer
4	Hydrogen
1	Helium
2	Radon
24	Not sure
1	No answer

**NO QUESTION KNOSCT24, KNOSCT25 AND KNOSCT26**

**ASK ALL:**

KNOSCT27

If the chances that an old bridge will collapse starts at 1% in week 1 and doubles each week (as shown below), what is the chance that the old bridge will collapse during week 7?

Chances the bridge will collapse is ...

1% at Week 1  
 2% at Week 2  
 4% at Week 3  
 8% at Week 4

Enter the % chance that the bridge will collapse at Week 7

May 10-June 6

2016

58 64% (*Correct*)  
 42 NET Incorrect/Not sure/No answer  
 20 All other numeric responses  
 19 Not sure  
 2 No answer

**ASK ALL:**

KNOSCT28

Which of the following conditions can be treated effectively by antibiotic medications?

[Check all that apply] **[RANDOMIZE ITEMS with ITEM e and f always last]**

May 10-June 6

2016

44 Bacterial infection only (*Correct*)  
 56 NET Incorrect/Not sure/No answer

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	Viral infections (such as a cold)	22	78
b.	Fungal infections (such as athlete's foot)	27	73
c.	Bacterial infections (such as strep throat infections)	81	19
d.	Allergic reactions to insect bites	17	83
e.	None of these <b>[EXCLUSIVE PUNCH]</b>	2	98
f.	Not sure <b>[EXCLUSIVE PUNCH]</b>	10	90

**ASK ALL:**

KNOSCT29 If a scientist wants to determine if a new drug is effective at treating high blood pressure by giving half of a group of 1,000 volunteers a new medication and the other half a "sugar pill," she wants to rule out... **[RANDOMIZE OPTIONS 1-3]**

May 10-June 6

2016

55	A placebo effect ( <i>Correct</i> )
45	NET Incorrect/Not sure/No answer
3	A third person effect
17	A false consensus effect
23	Not sure
1	No answer

**NO QUESTION KNOSCT30****ASK ALL:**

KNOSCT31 Which of these terms refers to health benefits occurring when most people in a population get a vaccine? **[RANDOMIZE OPTIONS 1-3]**

May 10-June 6

2016

32	Herd immunity ( <i>Correct</i> )
68	NET Incorrect/Not sure/No answer
8	Population control
33	Vaccination rate
26	Not sure
2	No answer

**ASK ALL:**

KNOSCT32 Which of the following can be genetically modified?

*[Check all that apply]* **[RANDOMIZE ITEMS with ITEM e and f always last]**

May 10-June 6

2016

36	Selected all ( <i>Correct</i> )
64	NET Incorrect/Not sure/No answer

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	An apple	59	41
b.	Salmon	51	49
c.	A mosquito	42	58
d.	Corn	70	30
e.	None of these <b>[EXCLUSIVE PUNCH]</b>	2	98
f.	Not sure <b>[EXCLUSIVE PUNCH]</b>	20	80

**ASK ALL:**

KNOSCT33 Humans and mice share the same genetic make-up by... **[RANDOMIZE ORDER LOW TO HIGH; HIGH TO LOW with NOT SURE ALWAYS LAST]**

May 10-June 6

2016

33	About 50% or more ( <i>Correct</i> )
67	NET Incorrect/Not sure/No answer
7	Less than 10%
14	Between 11% and 49%
46	Not sure
1	No answer

**ASK ALL:**

KNOSCT34 Which gas makes up most of the Earth's atmosphere? **[RANDOMIZE OPTIONS 1-4]**

May 10-June 6

2016

27	Nitrogen ( <i>Correct</i> )
73	NET Incorrect/Not Sure/No answer
9	Hydrogen
10	Carbon dioxide
35	Oxygen
17	Not sure
2	No answer

**TOTAL NUMBER CORRECT KNOSCT22 THROUGH KNOSCT34 [N=4,563]:**

May 10-June 6

2016

4	9 out of 9
8	8 out of 9
10	7 out of 9
10	6 out of 9
13	5 out of 9
14	4 out of 9
11	3 out of 9
12	2 out of 9
10	1 out of 9
8	0 out of 9
22	High science knowledge (7-9 correct)
48	Medium science knowledge (3-6 correct)
30	Low science knowledge (0-2 correct)

More details on the science knowledge index can be found in [Chapter 4](#) and the [Methodology](#) section of the related report, "[The Politics of Climate.](#)"