



THE CENTER FOR  
FOOD INTEGRITY<sup>SM</sup>

THE COALITION FOR RESPONSIBLE GENE  
EDITING IN AGRICULTURE

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# GENE EDITING ENGAGE IN THE CONVERSATION

*November 2018*



[GeneEditing.FoodIntegrity.org](http://GeneEditing.FoodIntegrity.org)

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# An Informed Dialogue on Gene Editing

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Gene editing technology is one of today's most promising innovations, with tremendous potential to benefit society and food production. Scientists worldwide are using gene editing to help solve a broad array of difficult challenges - seeking solutions to improve human nutrition and health, environmental stewardship and food insecurity.

In food production, gene editing can help farmers keep pace with the growing demand for healthier, more abundant and affordable food, while using less water and land, and fewer nutrients and other resources. Gene editing can improve the health, well-being and disease resistance of plants and animals. Gene editing can help reduce food waste, and it is being explored for solutions to human nutritional challenges.

In the midst of this promise, the success of gene editing hinges on public support and acceptance - granting researchers, scientists and the food system the social license to responsibly develop the technology to its full potential. As more applications are developed and begin to enter the marketplace, it's imperative that those using gene editing participate in an open, public dialogue about their commitment to responsible use.

## Consumers Want to Know



### 2 out of 3 consumers

want to know about **how** food is produced and **who's** producing it.

Source: *The Center for Food Integrity (CFI)*



### More than half of consumers

indicated they want to learn **more** about **CRISPR**.

Source: *CFI Best Food Facts video series*

Consumers are inherently curious about food production and generally have open-minded attitudes about gene editing. They want to learn more and deserve balanced, credible information from sources they can trust. It's an environment where effective, long-term engagement can provide information the public wants and needs to make informed decisions about gene editing.

## *The key is to engage in the most meaningful way.*

Traditionally it has been assumed that sound science and appropriate government oversight will result in social acceptance of innovation. But what consumers want first and foremost, according to research from The Center for Food Integrity (CFI), is to know that food producers care about the same things they do, like producing safe, affordable, nutritious food in a responsible manner that protects and sustains our environment.

## Communication Resources

We encourage you to consider the following guidance and resources in your communications about gene editing – whether that’s one-on-one and online conversations, presentations, marketing materials or media interviews.



These recommendations are the result of collaboration with associations, academic and health institutions and others who have conducted research on consumer perceptions about biotechnology and gene editing. A foundation is the CFI trust model that demonstrates the importance of communicating shared values.

The approach sets the stage for meaningful, long-term engagement with audiences who are open to learning more about the promise of gene editing.

## WHAT IS GENE EDITING?

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A METHOD OF SELECTIVE BREEDING THAT MAKES **PRECISE, INTENTIONAL** AND **BENEFICIAL** CHANGES IN THE GENETIC MATERIAL OF PLANTS AND ANIMALS USED IN FOOD PRODUCTION, WHICH CAN **IMPROVE** HEALTH, NUTRITION AND ENVIRONMENTAL STEWARDSHIP.

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OFTEN MIRRORS CHANGES THAT COULD **OCCUR IN NATURE** OR THROUGH **TRADITIONAL BREEDING**.



**HELPS FARMERS** KEEP PACE WITH THE GROWING DEMAND FOR MORE AND BETTER FOOD, WHILE **USING LESS** WATER, LAND, NUTRIENTS AND OTHER RESOURCES.

**For more information or support for an informed dialogue about gene editing, contact The Center for Food Integrity at [learnmore@foodintegrity.org](mailto:learnmore@foodintegrity.org) or (816) 880-5360**



## Consumer Perceptions about Gene Editing in Food & Agriculture

In reviewing various studies about consumer opinions on the role of science in food production, The Center for Food Integrity found these consistent themes.

### Key Takeaways

- There is a considerable knowledge gap among consumers – in science, genetics and modern plant and animal breeding.
- Before describing gene editing, it is helpful to show the evolution of genetic improvement in plants and animals.
- The public wants information from credentialed experts, but they do not want an academic explanation.
- Analogies and visuals are important to explain science, and they should be understandable without being oversimplified.
- Consumers show strongest support for benefits of science related to environmental stewardship, healthier food and disease resistance.
- Consumers have additional questions about use of science in animals, compared to plants.

## The knowledge gap

The public knowledge gap around science and genetics is validated by a significant number of publications.

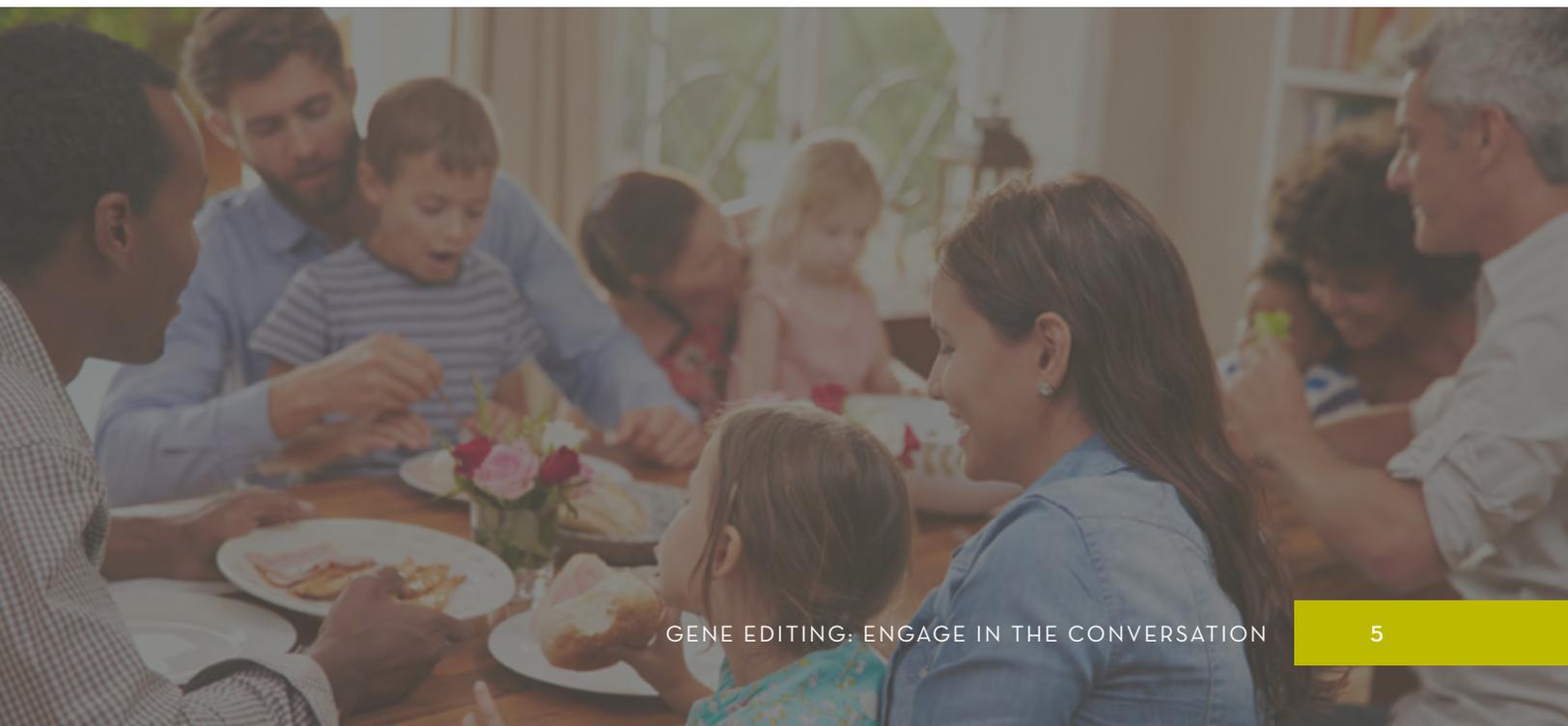
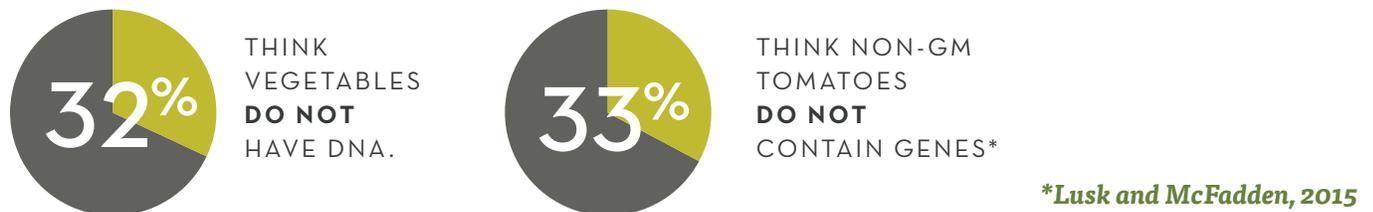
### ▶ CONSUMERS WANT TO LEARN MORE



### ▶ 2015 PLANT BREEDING FOCUS GROUP FINDINGS

- Some consumers had **no knowledge** that plants are bred
- Most consumers are **unaware** of the benefits in environmental stewardship brought by modern crop production
- Most respondents said they had **little understanding** of plant breeding
- There is **limited knowledge** about breeding methods that have been used for several decades, like conventional selection and mutagenesis

### ▶ ONE THIRD OF U.S. CONSUMERS HAVE LIMITED UNDERSTANDING ABOUT GENETICS IN FOOD



# Engage Effectively in the Conversation

## ► HOW INFORMATION FROM TRUSTED SOURCES MOVED THE NEEDLE

Presenting information about gene editing from trustworthy sources in a relatable, credible and understandable way can make a significant difference. Consider how support increased after a group of consumers watched a three-part video series on CRISPR from **BestFoodFacts.org**. This series is hosted by a blogger and digital influencer on a mission to learn more about the use of CRISPR who conducted interviews with human health and agriculture experts. Over half of the consumers surveyed found the videos **APPEALING, CREDIBLE** and **UNDERSTANDABLE** and they were interested in learning more. Acceptance of CRISPR grew significantly after watching the videos. For example, after viewing *“How can CRISPR Improve Food? Part 3 consumer support for use of CRISPR grew from 49% before to 62% after.”*

## 5 Effective Communication Approaches

1. Leverage expert spokespeople who are credentialed and relatable, show integrity and share values
2. Connect to gene editing solutions for human health
3. Talk about evolution of genetic improvement, not revolution
4. Demonstrate benefits and values that align with public desires
5. Share analogies and visuals that explain science but are not over-simplified or condescending

### 1 LEVERAGE EXPERT SPOKESPEOPLE WHO ARE CREDENTIALLED AND RELATABLE, SHOW INTEGRITY AND SHARE VALUES

WHO DO CONSUMERS TRUST FOR INFO ON GENE EDITING



When consumers were asked who they trust most for information about technology in food, several studies revealed similar findings.

In one recent study, high trust for regulatory authorities indicates their important role in building trust for gene editing; furthermore, lack of engagement by regulators may be perceived negatively.

When it comes to this science, perceptions about farmer spokespersons are diverse. Some consumers value hearing directly from those who use technology, while others suggest that familiarity can impact their impartiality. While farmers are an important voice, they should not be the only voice.

## 2 CONNECT TO GENE EDITING SOLUTIONS FOR HUMAN HEALTH

Research shows advancements in human medicine are the strongest entry in conversations about gene editing in food...

*because most people know someone impacted by lung cancer, leukemia, hemophilia or sickle cell disease where gene editing could be life-saving.*

Enter conversations about gene editing through human health applications, and then share about disease resistance and other applications in plants and animals.

### How do Americans feel about gene editing for human health?

In a survey of **1,600** people, **TWO-THIRDS** or more think gene editing for human therapeutic purposes is acceptable.

*Scheufele et al. 2017*

## CONVERSATION STARTERS

“Gene editing shows great potential to positively impact human health - to cure or prevent disease in humans - and gene editing can also help plants and animals resist disease.”





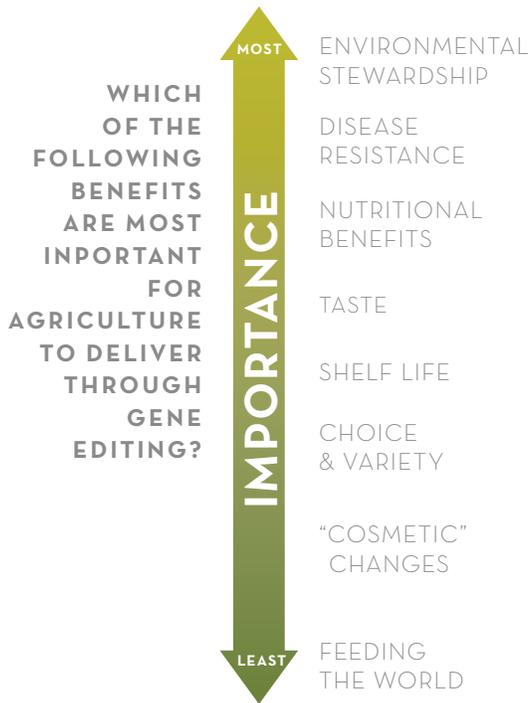
### **3 TALK ABOUT EVOLUTION OF GENETIC IMPROVEMENT, NOT REVOLUTION**

Scientists have every right to be proud of advancements; however, talking about how sciences can “revolutionize” food production does not resonate with consumers.. The public is more supportive when gene editing is described within the context of plant and animal genetic improvement, which has a legacy of safe, responsible use spanning several generations. Rather than being a “revolutionary” technique, consumers are more comfortable when gene editing is approached as an evolution or next iteration of improvement.

## **CONVERSATION STARTERS**

“Farmers and animal scientists have used genetic diversity and natural selection for several decades by choosing animals with the most desirable characteristics as the parents of the next generation. Gene editing is the next iteration to improve animals’ native genes. Gene editing allows for precise and small but important changes, which often mirror changes that could occur in nature or through traditional genetic selection.”

“Throughout history, farmers have been breeding plants for the best characteristics, like disease resistance and drought tolerance. The lengthy process of observing, selecting and breeding could take years or even decades to complete. Today, plant and animal scientists can use gene editing to make more precise, targeted changes to improve plants and provide solutions to a variety of challenges.”



#### 4 DEMONSTRATE BENEFITS AND VALUES THAT ALIGN WITH PUBLIC DESIRES

Consumers are curious about and generally supportive of science in food production when its use is positive for the environment, for disease resistance or to improve nutrition.

Consumers of various age demographics consistently rate positively the phrase, *“producing more food with fewer resources – like using less water, land or other natural resources.”*

Focus on yield improvements is **not** effective as a stand-alone benefit, but can resonate if there is a connection to the compelling benefit of “producing more with less.”

### CONVERSATION STARTERS

“Gene editing makes precise, intentional and beneficial changes in the genetic material of plants and animals used in food production, which can improve health, nutrition and environmental stewardship.”

“Gene editing helps farmers keep pace with the growing demand for more and better food, while using less water, land, nutrients and other resources.”

“Gene-editing provides farmers with tools that can protect plant health and help farmers produce more food using fewer natural resources.”

“One of the most devastating diseases to pigs is Porcine Reproductive and Respiratory Syndrome virus, or PRRS. Through gene editing, we can eradicate this disease, reduce treatment needs, alleviate pigs’ suffering and produce more pork using fewer natural resources.”

“Improving plants to eliminate allergens means fewer people will have to worry about an allergic reaction to food.”

### Key points

- Share benefits that matter most to **consumers - not** only food producers.
- Share benefits to the **environment, like protecting and conserving our natural resources - not** increased efficiency.
- Share benefits to **animals, like improving animal well-being and reducing disease - not** increased productivity.
- Share benefits to **plants, like tolerance to disease or weather conditions - not** increased yields.

## CONVERSATION STARTERS

### “THE USE OF GENE EDITING CAN HAVE A VERY POSITIVE ENVIRONMENTAL IMPACT.”

- Farmers have an obligation to meet the growing demand for healthy, wholesome food while also preserving our natural resources. Gene editing technology can help farmers achieve both.
- Gene editing can help make plants more resilient, which often means they will consume fewer natural resources.
- Gene editing holds great promise to ensure the survival of plants in changing weather patterns. Gene editing can make plants hardier to survive in droughts and floods, and to grow more successfully in regions of the world facing food shortages and malnutrition.

### “GENE EDITING CAN HELP ENSURE THE AVAILABILITY, QUALITY AND NUTRITION OF FOODS.”

- Scientists say gene editing may provide the best solution for citrus greening disease, which is destroying Florida orange groves, by improving the trees’ genetic code so they are resistant to the pathogen that causes the disease.
- If you or someone you know has a gluten sensitivity, gene editing could help. Scientists have successfully used gene editing to modify wheat, producing strains that are significantly lower in gluten.
- Chocolate lovers may be interested to learn that gene editing is showing great promise to protect the beans chocolate is made from. It’s estimated that a quarter of cocoa beans are lost each year to disease; gene editing can improve plants’ resistance to disease.

## 5 SHARE ANALOGIES AND VISUALS THAT EXPLAIN SCIENCE BUT ARE NOT OVER-SIMPLIFIED OR CONDESCENDING

For those less familiar with science and genetics, analogies, videos and graphics are very helpful to explain technology. Effective analogies are relatable, logical and safe - but not over-simplified. To date, common analogies for gene editing are a “genetic scissors,” “word processor” and “find-and-replace function”; however, research shows some other analogies are more effective.

## MORE EFFECTIVE ANALOGIES

Refer to the improvements of gene editing within the framework of a larger, yet tangible, context like these analogies.

### AN ENCYCLOPEDIA

“DNA is like a long encyclopedia of information - and increasingly, scientists can identify the exact page, the exact paragraph and even the exact word they want to study. With this knowledge, they can use gene editing tools to make corrections or improvements to specific areas of the genome.”

### HOUSE BLUEPRINT

“Like the blueprints used to build a house, DNA provides the information for building every living thing. Builders can make small changes to the blueprint - like modifying a defect or adding a feature - to improve the house. These are small, targeted changes relative to the entire house. Likewise, scientists can make small, targeted changes in DNA.”

## WORDS THAT WORK

These phrases are perceived more favorably, as shown through consumer research.

- Help farmers manage environmental challenges
- Grow enough food with less water and fewer resources
- Reduce pesticide use
- Protect plants
- Help plants/animals thrive
- Improve plants/animals
- Next iteration or next evolution (of plant improvement or animal genetics)
- Based on a natural process
- Includes no foreign DNA

## What about “Feeding the World?”

Annual CFI research consistently shows that consumers rate the need for U.S. farmers to feed the world as a low priority. Instead, these needs resonate with the American public.

- Growing enough food with less
- A commitment to doing what’s right for people, animals and our earth
- People’s basic right to consistently have access to safe, nutritious, affordable food

# The Power of Shared Values

## Consumer Trust Research from The Center for Food Integrity

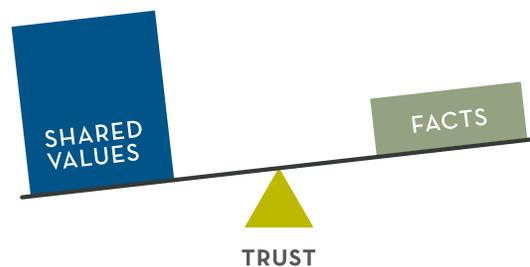
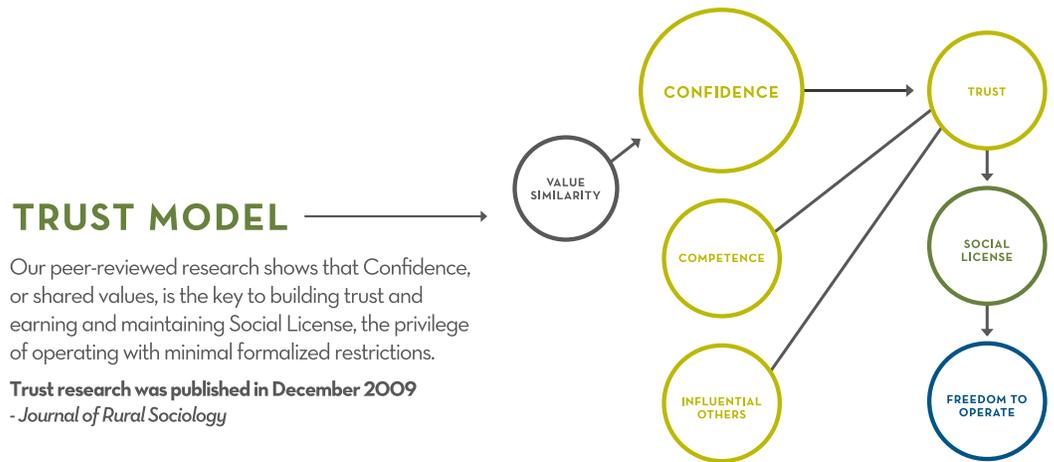
In conversations with consumers about food production,

**VALUES ARE 3 TO 5 TIMES MORE IMPORTANT THAN FACTS.**

*Yes, science and data are important,  
but we must first establish shared values.*

CFI's peer-reviewed and published trust model demonstrates that Confidence (value similarity), Competence (skills and expertise) and Influential Others (credentialed and/or credible individuals) are the primary factors in building trust, which leads to the public granting social license and the freedom to operate. Confidence, or value similarity, is the key driver.

CFI research shows that shared values are much more important to earning trust than communicating with science or demonstrating technical skills and expertise. Simply sharing science and facts actually galvanizes opposing viewpoints and makes it harder to find common ground.



### WHAT DRIVES CONSUMER TRUST?

Shared values are 3-to-5 times more important to building trust than sharing facts/science or demonstrating technical skills/expertise

Consumers simply want to know the food industry shares their values for safe, affordable, nutritious food, high standards of animal care and environmental stewardship.

## Keys to Shared Values Communication

### ▶ EMBRACE SKEPTICISM

You can embrace skepticism without validating misinformation. Listen for the underlying value. What's the source of the concern? Environment, food safety, corporate influence? "I appreciate your interest in the environment. I know protecting the environment is critical to farmers. I'd like to share my perspective on that issue..."

### ▶ DON'T CHALLENGE BELIEFS

Challenging strongly held beliefs will cause people to become defensive and dismissive. "I can tell you feel very strongly about this issue. I respect your commitment and share your concern about... (food safety, our environment, etc.). We may not share the same beliefs about the issue, but I respect and appreciate your perspective..."

### ▶ LEAD WITH VALUES

Don't discuss science or data until you've listened and expressed shared values. "I can tell you're passionate about food safety. I am, too..."

### ▶ BE WILLING TO TALK ABOUT THE HARD ISSUES WITH AUTHENTIC TRANSPARENCY

Who you are is more important than what you know. Consumers want to know you genuinely care and that you are open to discussing the tough questions. "I can tell this is an issue that's important to you and it's important to me, too. I may not have all the answers, but I'll do my best to address your questions..."

## LISTEN - ASK - SHARE

Actively listen, without judgment, for agreement and points of connection to understand how their concern is tied to their underlying values.

Ask questions to invite dialogue and clarify their perspective. Show that you heard them by acknowledging what they said.

*"I understand why there are questions. What concerns you most?"*

Share your values-based perspective first to build trust

*"People in the U.S. and all around the world deserve safe, healthy and affordable food. That's why I've devoted my career to researching ways to improve food production."*



## CONVERSATION STARTERS

“I’m a parent first and foremost. Like all parents, I want the food I feed my kids to be safe and healthy. Researching ways to improve food gives me a chance to play a role in ensuring safe, healthy food.”

“People in the U.S. and all around the world deserve safe, healthy and affordable food. That’s why I’ve devoted my career to researching ways to improve food production.”

“New technologies have enabled us to take better care of crops and reduce our environmental footprint. I think gene editing holds tremendous promise on both fronts.”

“I’m excited about the tremendous potential of gene editing. Medical researchers are working on ways that gene editing can benefit human health, possibly preventing and curing disease. Plant and animal scientists are researching how gene editing can improve the way we produce food - whether that’s growing crops or raising animals.”



# Glossary of Genetic Terms

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Earning trust in gene editing requires communicating in a way that makes science meaningful to a general public that is less familiar with genetic terms and scientific processes. When communicating with non-scientific audiences, consider describing the following terms with less jargon to help make the science more understandable. Using consumer-friendly images and analogies can also be very useful in making information relatable.

These terms can be introduced into a conversation about the continuum of genetic improvement in plants and animals, with gene editing as a next iteration in genetic improvement, or what farmers and scientists have been doing for years.

Another helpful resource is the glossary from [Innovative Genomics Institute](#)

## Gene Editing

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### **GENE EDITING** (also known as **Genome Editing**)

- 1) Gene editing makes precise, intentional and beneficial changes in the genetic material of plants and animals used in food production, which can improve health, nutrition and environmental stewardship. This often mirrors changes that could occur in nature or through traditional breeding. Gene editing helps farmers keep pace with the growing demand for more and better food, while using less water, land, nutrients and other resources.

*NOTE: The work of the Coalition for the Responsible Use of Gene Editing in Agriculture is focused on gene editing applications that produce variation in native alleles that could occur or be achieved through selective breeding between species that are sexually compatible.*

**SOURCE:** [Coalition for Responsible Gene Editing in Agriculture](#)

- 2) The process of making precise, targeted changes in the DNA of living cells and organisms.

**SOURCE:** [Council for Agricultural Science and Technology](#)

## Gene Editing Techniques

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### **CRISPR**

CRISPR refers to a specific type of gene editing and stands for “Clustered Regulatory Interspersed Short Palindromic Repeats.” Like other gene editing processes, CRISPR can precisely change the genetic code, or DNA, within a living thing.

Adapted from [Best Food Facts](#)

### **MEGANUCLEASES**

Meganucleases can be described as molecular scissors that cut DNA at a very specific location. Meganucleases target large DNA sequences, thus the word “mega.” Such large sequences in DNA rarely occur. Meganucleases can be used as highly specific tools to modify or eliminate a particular gene, for example.

Adapted from [Meganucleases by Cellectis](#)

### **TALENs**

Transcription Activator-like Effector Nucleases, or TALENs, refers to one technique used for gene editing. Its first reported success came in 2012 when researchers at Iowa State University used the technique to develop disease-resistant rice. The technique has also been used to create naturally hornless cattle and soybeans with higher quality oil.

SOURCE: [Genetic Literacy Project](#)

### **ZINC FINGER NUCLEASES (ZFNs)**

ZFNs is the oldest of the gene editing technologies, developed in the 1990s. It has been primarily used in research for a variety of human diseases, including HIV/AIDS and hemophilia. It is used in plants to stimulate the cell's naturally occurring DNA repair processes.

SOURCE: [Genetic Literacy Project](#)

## Other Genetic Terms

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### **CISGENESIS**

The introduction into an organism's genome of a gene from a member of the same species or a closely-related species.

SOURCE: [Council for Agricultural Science and Technology](#)

### **CROSSBREEDING (ANIMALS)**

In genetic improvement, mating two purebred animals that come from different breeds or varieties, with the intent of producing offspring that would acquire desired, or beneficial, traits of the parents. This is commonly practiced by animal breeders, especially when the desired traits would be beneficial to the offspring, such as when its health is enhanced.

SOURCE: [Biology Online Dictionary](#)

### **CROSSBREEDING (PLANTS)**

Classical plant breeding crosses closely or distantly related plants to produce new crop varieties with desirable characteristics.

Adapted from [Science Daily](#)

### **DNA**

DNA, which stands for deoxyribonucleic acid, is a unique genetic code that, like a recipe, holds the instructions for making all the proteins in organisms. DNA tells cells how to grow, function and reproduce.

Adapted from [Your Genome](#)

**GENE**

A segment of DNA that encodes the information used to make a protein. Each gene is a set of instructions, like a recipe, for making a particular molecular machine that helps a cell, organism or virus function.

Adapted from [\*Innovative Genomics\*](#)

**GENOME**

A genome is an organism's complete set of DNA, including all of its genes. Each genome contains all of the information needed to build and maintain that organism. In humans, a copy of the entire genome—more than 3 billion DNA base pairs—is contained in all cells that have a nucleus.

SOURCE: [\*Genetics Home Reference\*](#)

**GMO**

GMOs are crops developed through **genetic engineering**, which allows plant breeders to take a desirable **trait** found in nature and transfer it from one plant or organism to the plant they want to improve, as well as make a change to an existing trait in a plant they are developing. The 10 genetically modified crops available today include: alfalfa, apples, canola, corn (field and sweet), cotton, papaya, potatoes, soybeans, squash and sugar beets.

SOURCE: [\*GMOanswers.com\*](#)

**HYBRID**

A hybrid is an animal or plant that has been bred from two different breeds or varieties of animal or plant, similar to crossbreeding.

SOURCE: [\*Collins Dictionary\*](#)

**HYBRID BREEDING**

Two different varieties or breeds are crossed to produce an offspring with stable characteristics and hybrid vigor, where the offspring is much more productive than either parent.

SOURCE: [\*Crops.org\*](#)

**MUTAGENESIS**

Changing the genetic material of an organism in a stable manner, resulting in a mutation.

SOURCE: [\*Biotech Articles\*](#)

**MUTATION**

A change from one genetic letter (nucleotide) to another. Variation in DNA sequence gives rise to the incredible diversity of species in the world, and even occurs between different organisms of the same species. While some mutations have no consequence at all, certain mutations can directly cause disease. Mutations may be caused by DNA-damaging agents such as UV light or may arise from errors that occur when DNA is copied by cellular enzymes. They can also be made deliberately via gene editing and other methods.

SOURCE: [\*Innovative Genomics\*](#)

## Glossary (continued)

### **PLANT BREEDING**

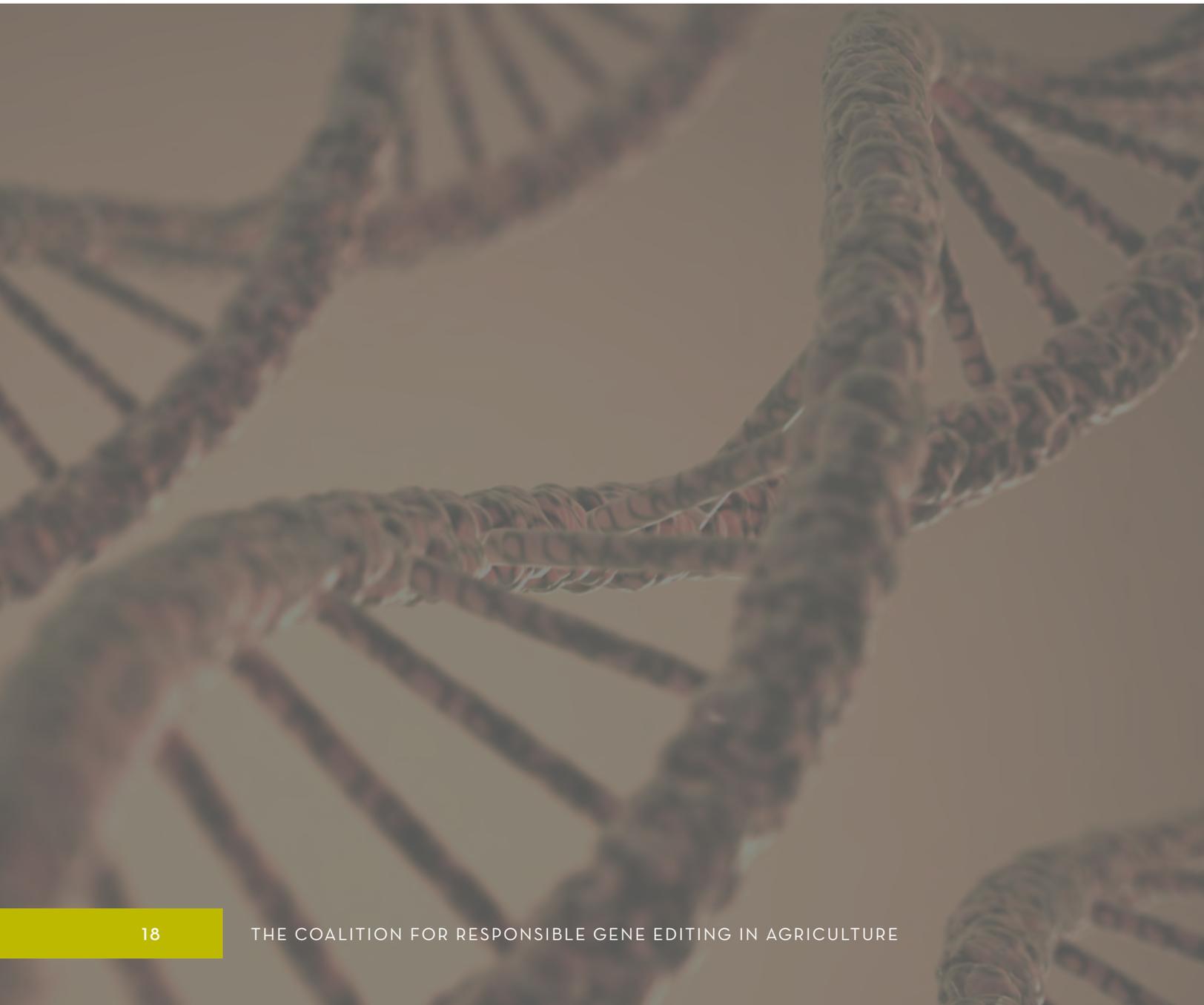
Since plants were first domesticated, gardeners, farmers and plant scientists have been observing, selecting and breeding for their most desirable traits. In the past, this involved looking at a plant's observable advantages – like growth, disease resistance and taste – then selecting and planting the seeds from those plants. Over time, this resulted in better, stronger plants, which breeders continued to improve over time.

SOURCE: [American Seed Trade Association](#)

### **TRANSGENIC**

Transgenic refers to the movement or insertion of a gene into an organism that normally does not have a copy of that gene.

SOURCE: [GMOAnswers.com](#)



# Resources

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## ARTICLES & BLOGS

- Best Food Facts - [CRISPR - Why is it used in Food?](#)
- Best Food Facts - [How Did Science Create an Apple that Doesn't Brown?](#)
- Best Food Facts - [New Potatoes Solve History Problem](#)
- Gates Foundation - [Gene Editing for Good: How CRISPR Could Transform Global Development](#)
- University of California Davis - [What is Gene Editing? By Dr. Alison Van Eenennaam](#)
- Live Science - [What is CRISPR? With Dr. Jennifer Doudna \(video included\)](#)

## IMAGES

- Corteva Agriscience - [Here's How CRISPR-Cas Works](#)
- Danforth Center Gene Editing with CRISPR-Cas9 - [Gene Editing with CRISPR-Cas9 Infographic](#)
- Innovative Genomics Institute - ["The Future of Genome Editing" IGI Infographic](#)
- Massachusetts Institute of Technology - [CRISPR Cuts](#)
- National Pork Board - [Producer Shares Views on Gene Editing](#)

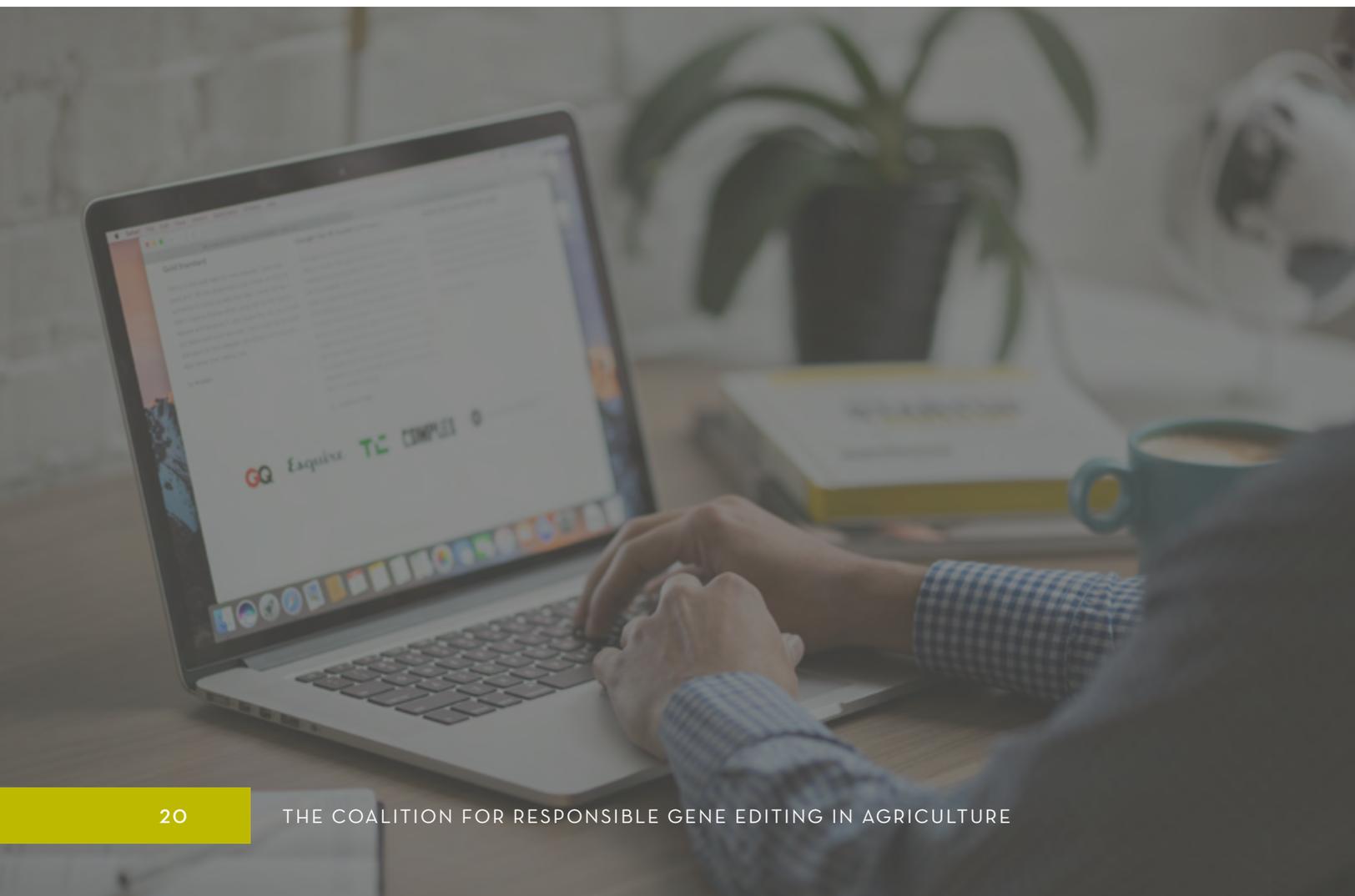
## VIDEOS

- American Seed Trade Association (ASTA) - [Seed Innovation Video Library](#)
- American Seed Trade Association (ASTA) - [Saving the Orange](#)
- Bayer - [What is Gene Editing?](#)
- Best Food Facts - [What is CRISPR Technology? Part 1](#)
- Best Food Facts - [How Can CRISPR Treat Disease? Part 2](#)
- Best Food Facts - [How Can CRISPR Improve Foods? Part 3](#)
- Bill Nye The Science Guy - [Genes Episode](#)
- Bozeman Science - [What is CRISPR?](#)
- CommonGround - [Plant Breeding Innovation 1](#)
- CommonGround - [Plant Breeding Innovation 2](#)
- Corteva Agriscience - [CRISPR-Cas for Healthy Seed Development](#)
- Nature Methods - [CRISPR Gene Editing and Beyond](#)
- Purdue University - [Interview with Dr. Williams M. Muir, Biotechnologist](#)
- TED Talk with Jennifer Doudna - [How CRISPR Lets Us Edit Our DNA](#)

The Roslin Institute - [Three Videos on Advantages and Potential of Gene Editing](#)  
University of California Berkeley - [What is CIRPSR-Cas9 Gene Editing and How It Works with Jennifer Doudna](#)  
University of California Berkeley - [The Ethics of Gene Editing with Jennifer Doudna](#)

## **WEBSITES**

American Seed Trade Association (ASTA) [Resource Library](#)  
American Seed Trade Association (ASTA) [FAQs](#)  
Best Food Facts [BestFoodFacts.org](#)  
CommonGround [Plant Breeding](#)  
CRISPRcon [CRISPRcon.org](#)  
Genetic Literacy Project [Gene Editing/CRISPR](#)  
Innovative Genomics Institute [Media Library](#)  
National Human Genome Research Institute [Genome Editing](#)  
NIH U.S. National Library of Medicine [Genome Editing](#)



# The Coalition for Responsible Gene Editing in Agriculture

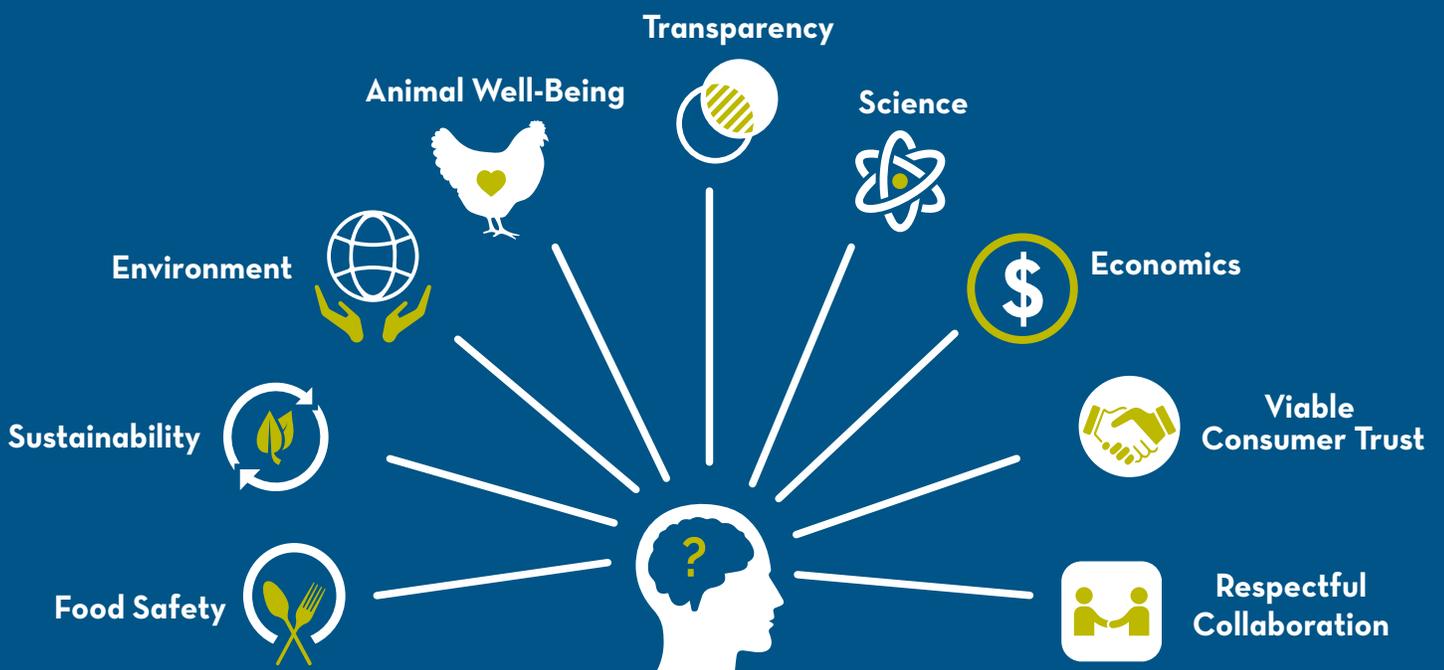


Created in 2016, the Coalition is a partnership of diverse stakeholders, including academia, plant and animal genetic companies, agriculture and food system stakeholders, and consumer advocacy groups, who share a vision of global acceptance and support for the responsible use of gene editing technology in agriculture and food.

Coalition participants have a shared goal of engaging in an informed, open dialogue about the potential of gene editing to provide safe, nutritious and affordable food produced in sustainable systems.

These values will guide Coalition efforts.

## VALUES



For more about the Coalition for Responsible Use of Gene Editing visit [geneediting.foodintegrity.org](http://geneediting.foodintegrity.org) or contact The Center for Food Integrity at [learnmore@foodintegrity.org](mailto:learnmore@foodintegrity.org) • 816.880.5360



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**THE COALITION FOR  
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**GeneEditing.FoodIntegrity.org**

The Center for Food Integrity is a not-for-profit organization with the mission of helping today's food system earn consumer trust. Our members and project partners, who represent the diversity of the food system, are committed to providing accurate information and working together to address important issues in food and agriculture. The Center does not lobby or advocate for individual companies or brands.

Contact The Center for Food Integrity for more information at **learnmore@foodintegrity.org** or **816.880.5360**



FoodIntegrity.org

**November 2018**

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