Consumer perceptions of animal biotechnology in agriculture

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The “big is bad” mentality and unfamiliarity with how food is produced lead to high public skepticism about the consolidation and integration of food production and general mistrust.

The “Mom Tribe” Consumer Panel

What sources have you used to conclude GMOs are dangerous?

Heidi: *“I’m part of a moms group. When there is a big consensus, I think ‘there’s something here.’ You don’t need doctors or scientists confirming it when you have hundreds of moms.”*

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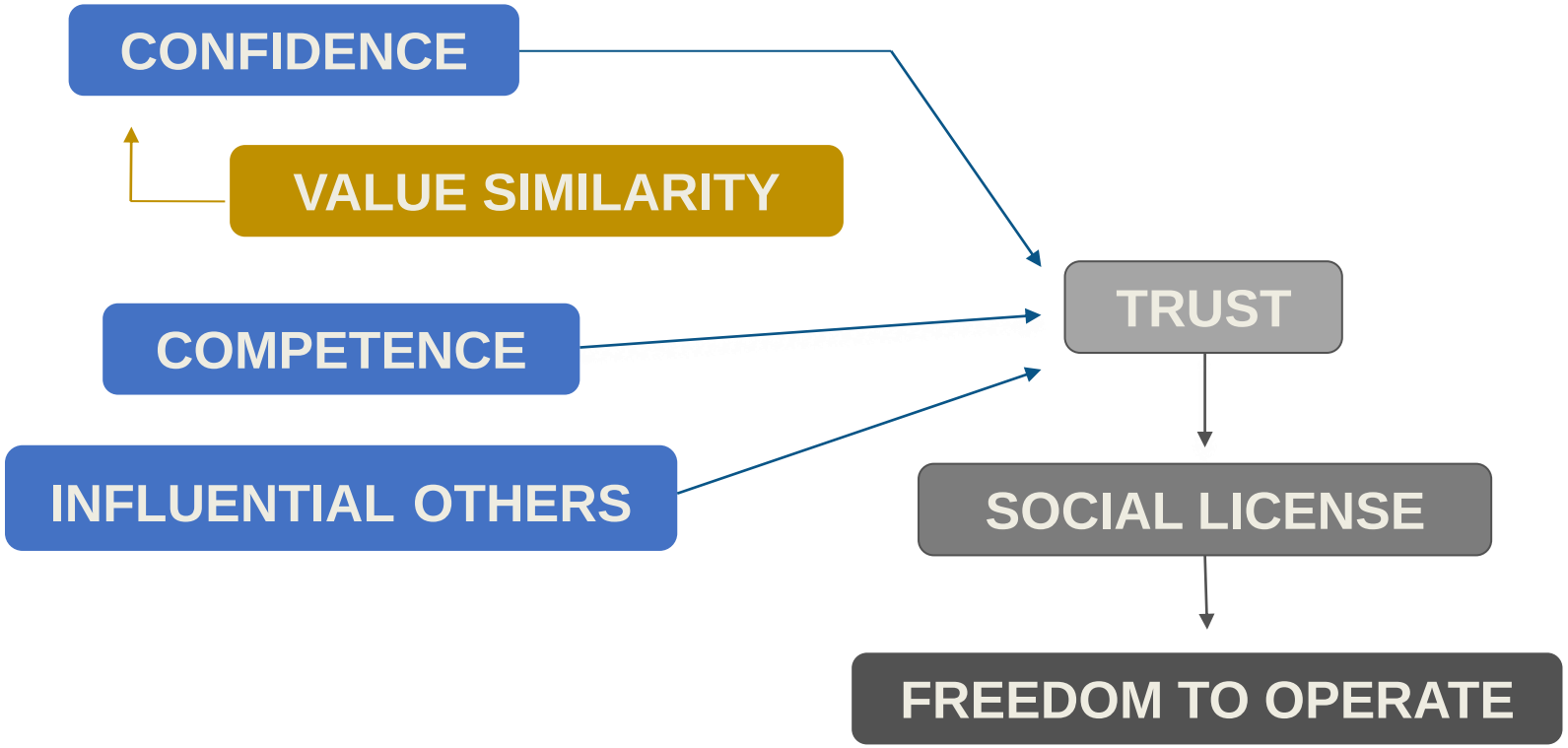
Trust Model



Trust research was published in the *Journal of Rural Sociology*

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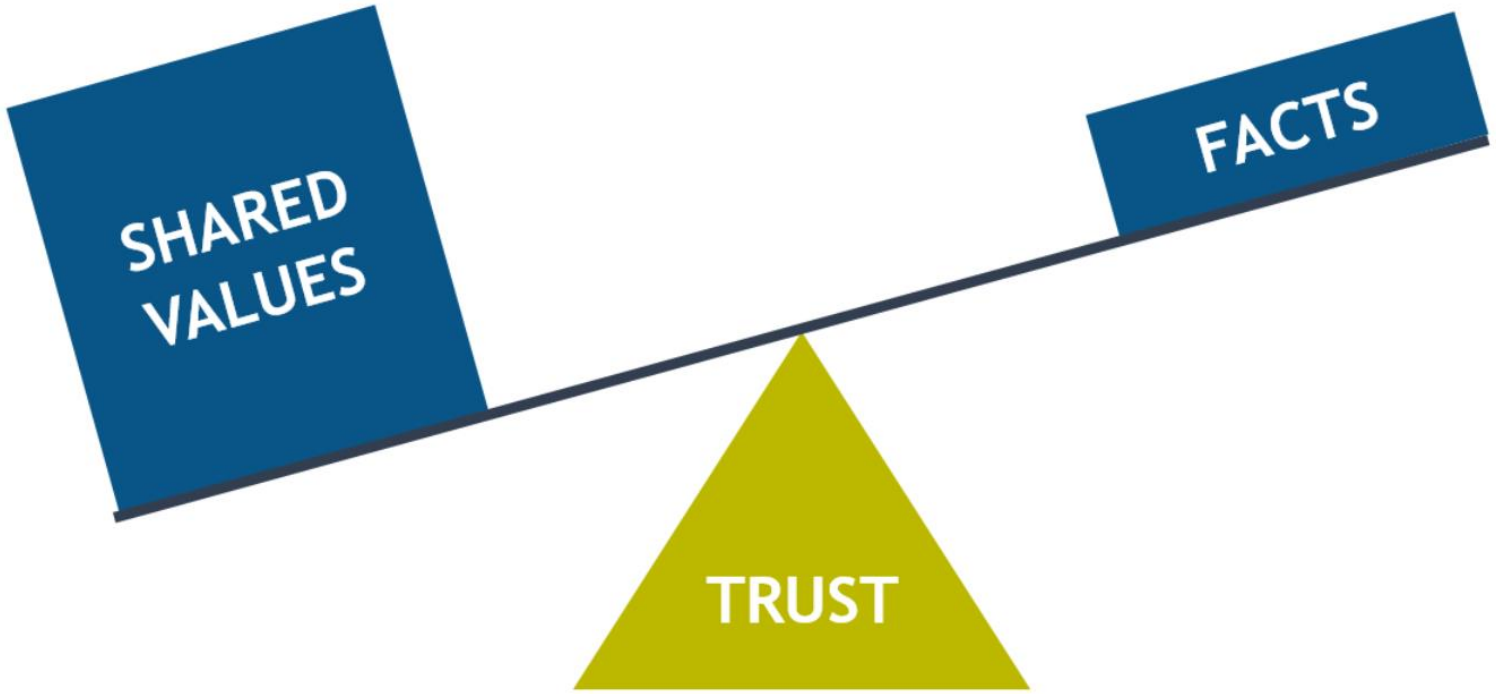
What Drives Consumer Trust?



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

Shared Values in Biotech

- **Benefits to consumers; <u>providing healthy, affordable food</u>**
  - Not farmer benefits or profit
- **Benefits to animals; <u>improving animal health</u>**
  - Not increasing productivity
- **Benefits to the environment; <u>protecting our natural resources</u>**
  - Not increased efficiency

Universal Values in Biotech

- **Responsibility**: “We have a responsibility to ensure plants, animals and the environment are protected.”
- **Respect**: “We understand that the public has questions about biotechnology and we are committed to answering them.”
- **Truth**: “We are committed to being open and honest about [*our oversight role, research, responsibilities*].”

HISTORICAL APPROACH: SCIENCE & ECONOMICS

Historically

Research proves it's ok to do this...

We can increase profitability if we...

SHIFT

We have a responsibility to protect plants, animals and the environment...

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Answering the Wrong Question

Science Question	Ethical Question
	

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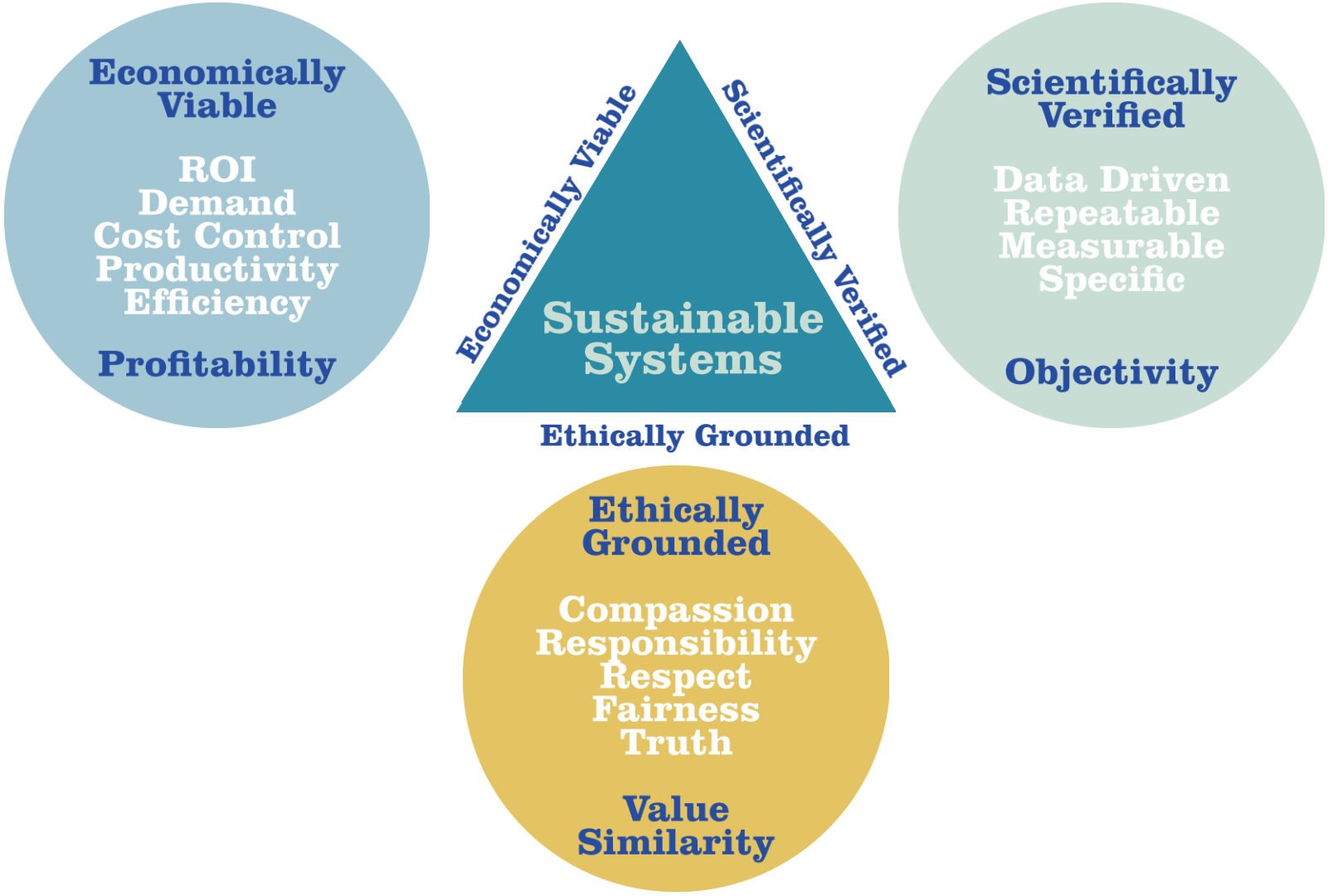
Don’t Abandon Science and Facts

Lead with Shared Values to Build Trust

Sustainable Balance



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The GMO Challenge

- GMOs have become an icon for what consumers consider an “industrialized” food system.
- Concerns about GMO are often not about the technology itself, but rather what the technology represents.
- Historically, communications about GMOs have been void of values that align with consumers.

Messaging

OLD

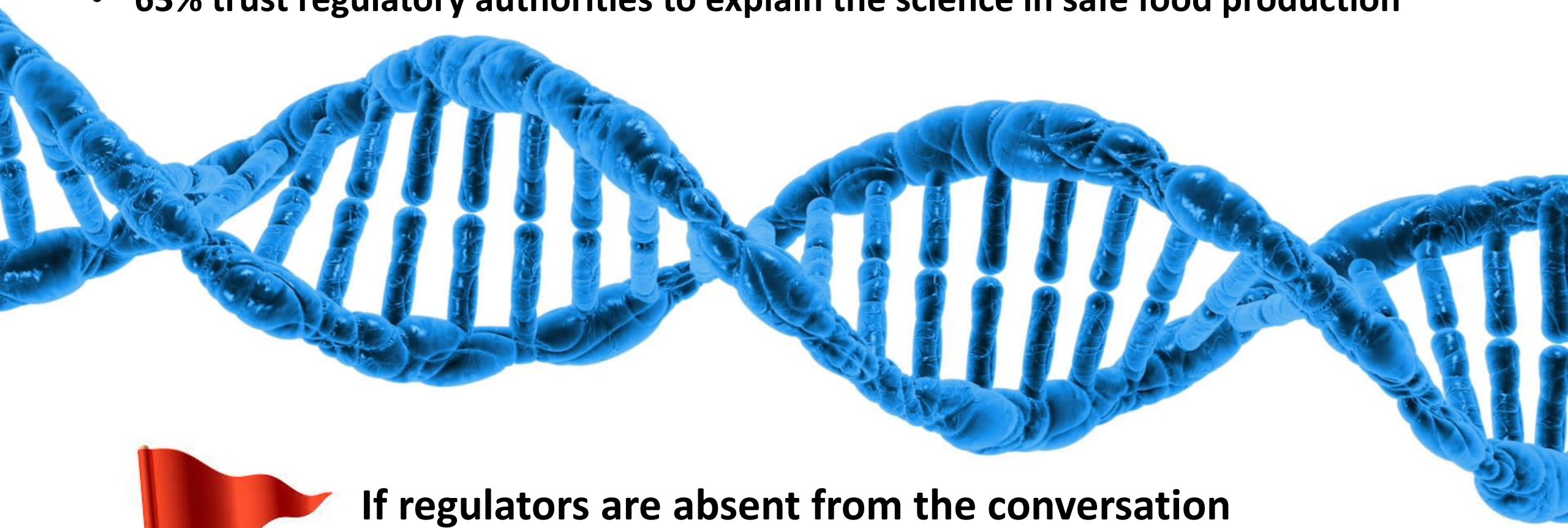
- Biotechnology helps to improve efficiency on farms
- GE crops increase productivity by being resistant to insects and disease
- Modifying pigs to be disease resistant increases profitability

NEW

- Biotechnology allows farmers to produce more food using fewer natural resources
- Modifying plants to eliminate allergens means fewer people will have to worry about an allergic reaction to food
- Pigs that are resistant to one of the deadliest, incurable swine diseases, will suffer less and fewer will die prematurely

GOVERNMENT'S IMPORTANT VOICE

- **50% of consumers trust what regulatory authorities say about gene editing**
- **63% trust regulatory authorities to explain the science in safe food production**



If regulators are absent from the conversation about gene editing, it raises red flags for consumers (USDA and FDA)

Research Source: Monsanto

Framing the Benefits: Biotech

BEFORE:

(Government website about biotech)

"Biotechnology provides farmers with tools that can make production cheaper and more manageable.

For example, some biotechnology crops can be engineered to tolerate specific herbicides, which make weed control simpler and more efficient."

AFTER:

Biotechnology provides farmers with tools that can protect plant and animal health and help farmers produce more using fewer natural resources.

For example, biotechnology tools can modify plants to consume less water, eliminate allergens in plants, and protect animals from diseases.

Framing the Benefits: PRRS resistant pigs

BEFORE:

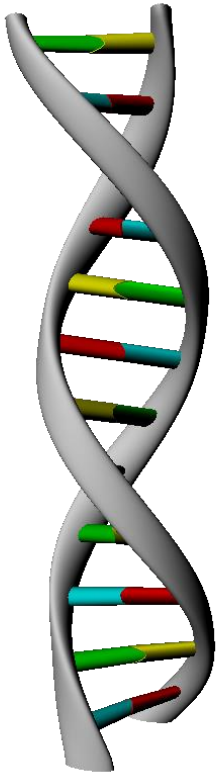
(Researcher quote from about PRRS gene-editing breakthrough)

"In general terms there is still public concern about gene editing in the food that we consume, but this needs to be countered by hard evidence from well-designed studies. Alarmist titles such as 'Frankenstein foods' should play no part in the discussion."

AFTER:

"We welcome the opportunity to engage with the public about this breakthrough. PRRS is a devastating disease that causes suffering and the premature death of millions of pigs each year, so I fully support innovation that protects these animals and our food supply."

The Knowledge Gap



- **One-third of U.S. consumers have little to no knowledge about genetics**
  - **32%** think vegetables do not have DNA
  - **33%** think non-GM tomatoes do not contain genes

Lusk & McFadden, 1004 consumers

Gene Editing Research Insights: What Resonates with Consumers?

- Expert **spokespeople** who are relatable, show integrity and share values
- Connect to **human health**
- Talk **evolution,** not revolution
- Demonstrate **benefits and values** that align with public desires
- Share **analogies and visuals** that explain science - but are not condescending or too simple

Talk Evolution, not Revolution





- ***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.*

Analogies That Don't Work:

Precise genetic scissors

Word processor find-and-replace

A film splicer

Analogies That Do Work:

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…"

House Blueprint

"Like the blueprints used to build a house, DNA provides the information for building every living thing. Builders can make small, targeted changes to the blueprint – like modifying a defect or adding a window – to improve the house…."

How Do We Establish Human Health Connection?

CRISPR 3-part Video Series on Best Food Facts

Part I
What is CRISPR Technology?
Dr. Rudolphe Barrangou
North Carolina State University

Part II
How Can CRISPR Treat Disease?
Dr. Nazia Tabassum
Shakir Cannon, advocate
Erin Brenneman, farmer

Part III
How Can CRISPR Improve Food?
Dr. Jessica Lyons
University of CA - Berkeley

Best Food Facts

https://www.bestfoodfacts.org/what-is-crispr/

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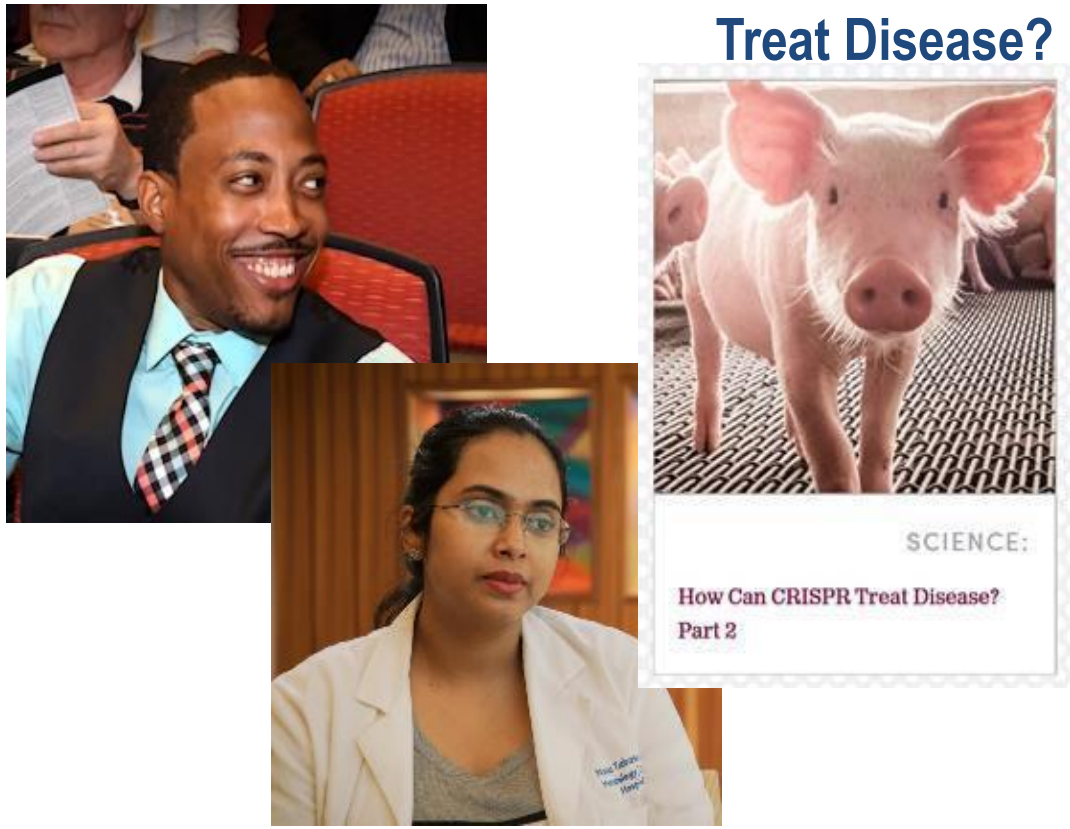
Consumer Ratings of Video #2

CREDIBLE	64%	
POSITIVE	63%	
SUPPORT	60%	+15%
CLEAR	64%	



When given credible, clear, interesting and understandable information, support shifted significantly.

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2 Connect to gene editing solutions for human health

Advancements in human medicine are a strong entry in conversation about gene editing in agriculture and food. Most people know someone impacted by HIV, leukemia, Sickle cell or another condition where gene editing could be life-saving.

"Talking about healthcare is way less abstract. It's personal."
- Influencer, San Francisco

"Thinking about the human genome, about leukemia, fixing disease, it helped me understand the broader context."
– Influencer, Chicago

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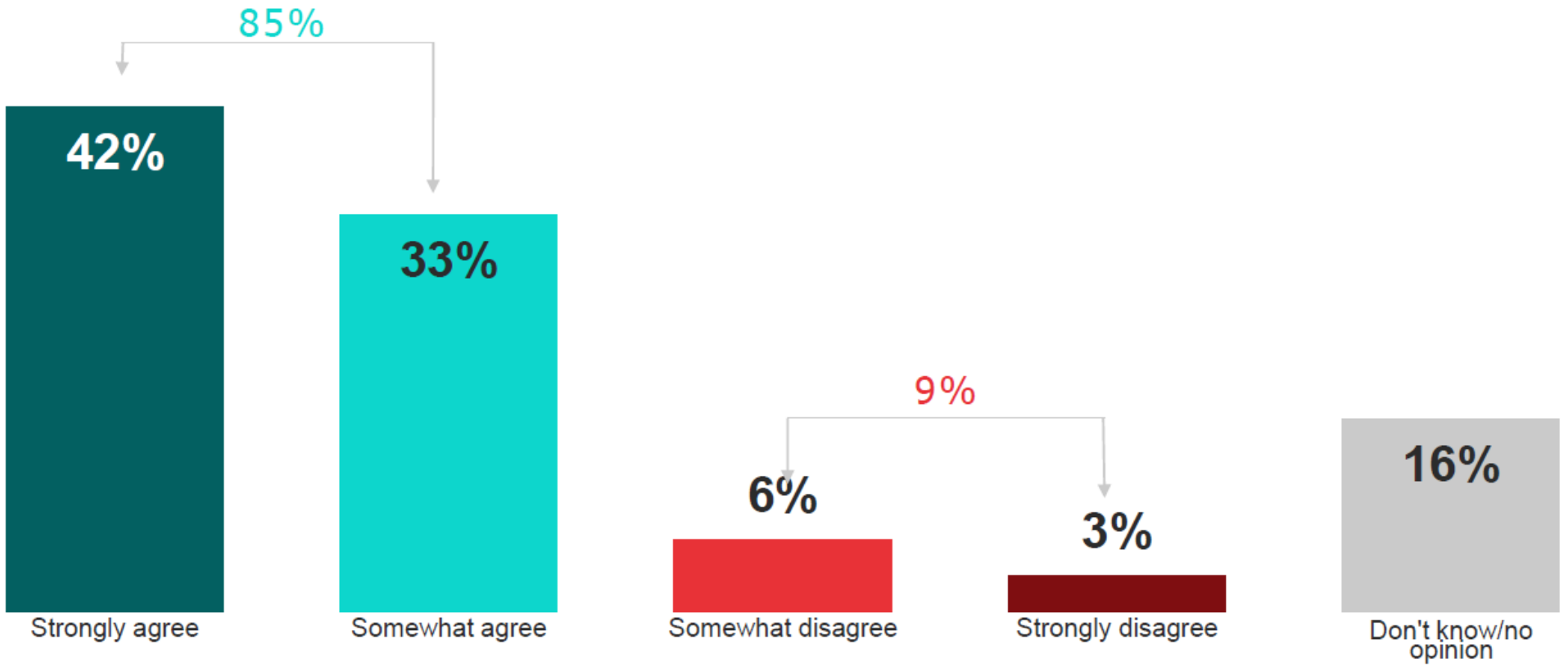
MESSAGE TESTING

After learning more about plant breeding, 85% of adults agree farmers should have access to plant breeding methods to help them reduce pesticide use and conserve water.

As you may know, plant breeding methods like gene editing yield crops that are resistant to disease, drought and insects. Based on what you know, do you agree or disagree with the following statement: Farmers should have access to these plant breeding methods to help them reduce pesticide use and conserve water.

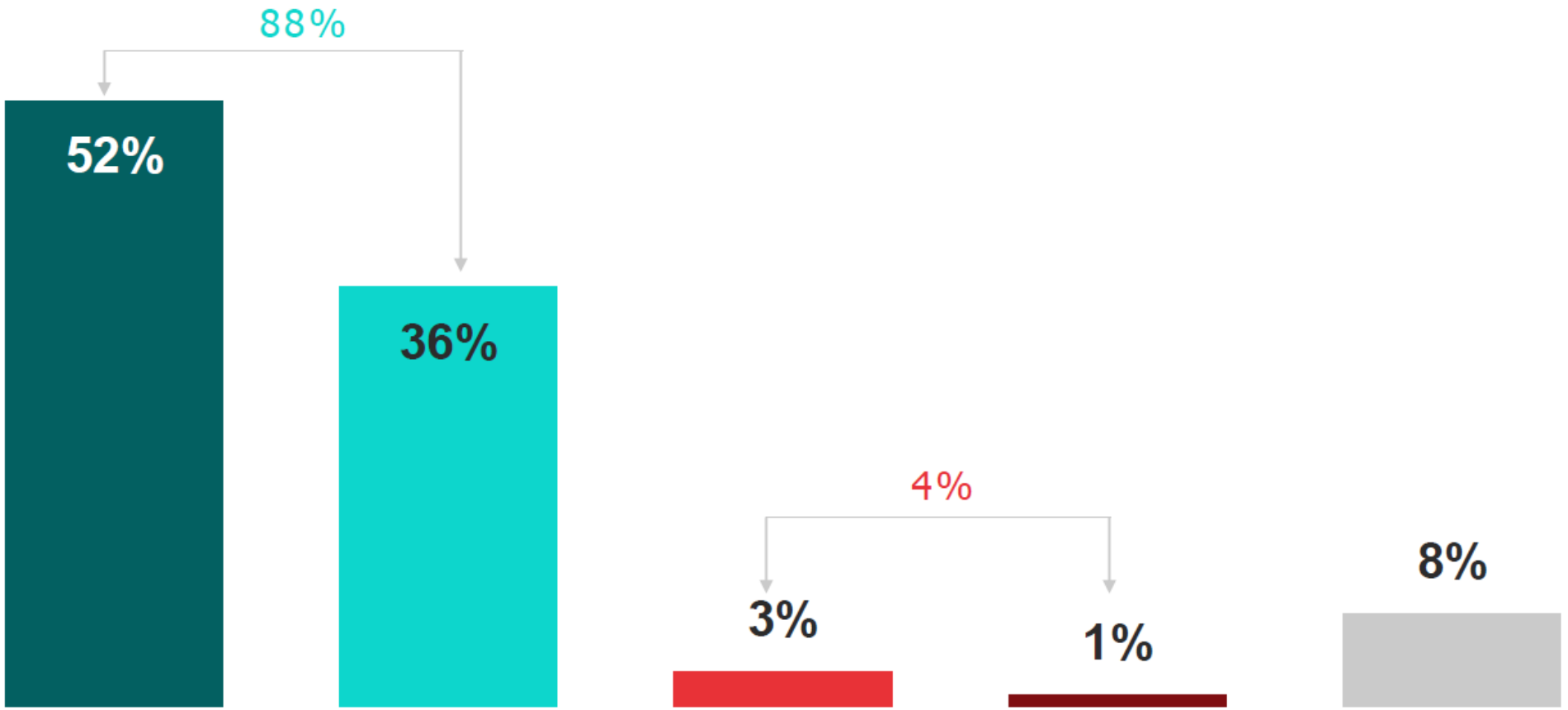


TRUST AND FAVORABILITY OF FARMERS

MORNING CONSULT

Nearly nine in ten adults (88%) report they trust farmers, a 4% increase from June 2020.

How much do you trust farmers?



Thank you!

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