

Bridging the Agriculture Perception Divide

A Study by Nutrien



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Feeding the World:

A Message from Nutrien President and CEO Ken Seitz

Feeding the world safely and sustainably is one of the most pressing challenges of our time, and farmers have humbly risen to the occasion. Yet with a population of 8 billion – and another 2 billion on the way by 2050 – our world is reaching a tipping point, and we face an urgent need to feed, fuel and clothe more people, more sustainably, than ever before. This challenge cannot be understated, as farmers will need to produce more than they have over the past 10,000 years.

This isn't the first challenge farmers have faced, and it won't be the last. We are fortunate that the agriculture industry is resilient, and that ingenuity, innovation and commitment are shared qualities of farmers across the globe. However, to meet this tremendous challenge, we all need to come together in support of farmers who produce the essentials of life. This will require understanding and support from consumers, policymakers, all of us, to help them lead the world into the next era of sustainable agriculture.

The good news is that people are very interested in learning more about where their food comes from, how it is grown, and under what conditions. While encouraging, there are also a troubling number of misperceptions about modern agriculture. With fewer people farming than ever before, a significant gap has formed in the perception about what people believe happens on the farm and what is actually taking place.

To address that gap, we first need to understand it. Earlier this year, Nutrien conducted research to quantify the perception gap around farming, polling thousands of consumers and hundreds of farmers across North America to understand if there was a perception gap, and to demonstrate the urgency and the opportunity of finding common ground to meet our global challenges head-on.

Confronted by the pressing realities of climate change and population growth, farmers must feed the world as efficiently and sustainably as possible. Humanity and our planet need farmers to achieve these goals. Closing this gap is vital to that mission.

The world is asking a lot of our farmers, and it is incumbent on all of us to support them in safely and sustainably feeding the future.

Ken Seitz

President and Chief Executive Officer
Nutrien Ltd.



Bridging the Agriculture Perception Divide:

Examining Four Gaps Between Farmer and Consumer Perceptions

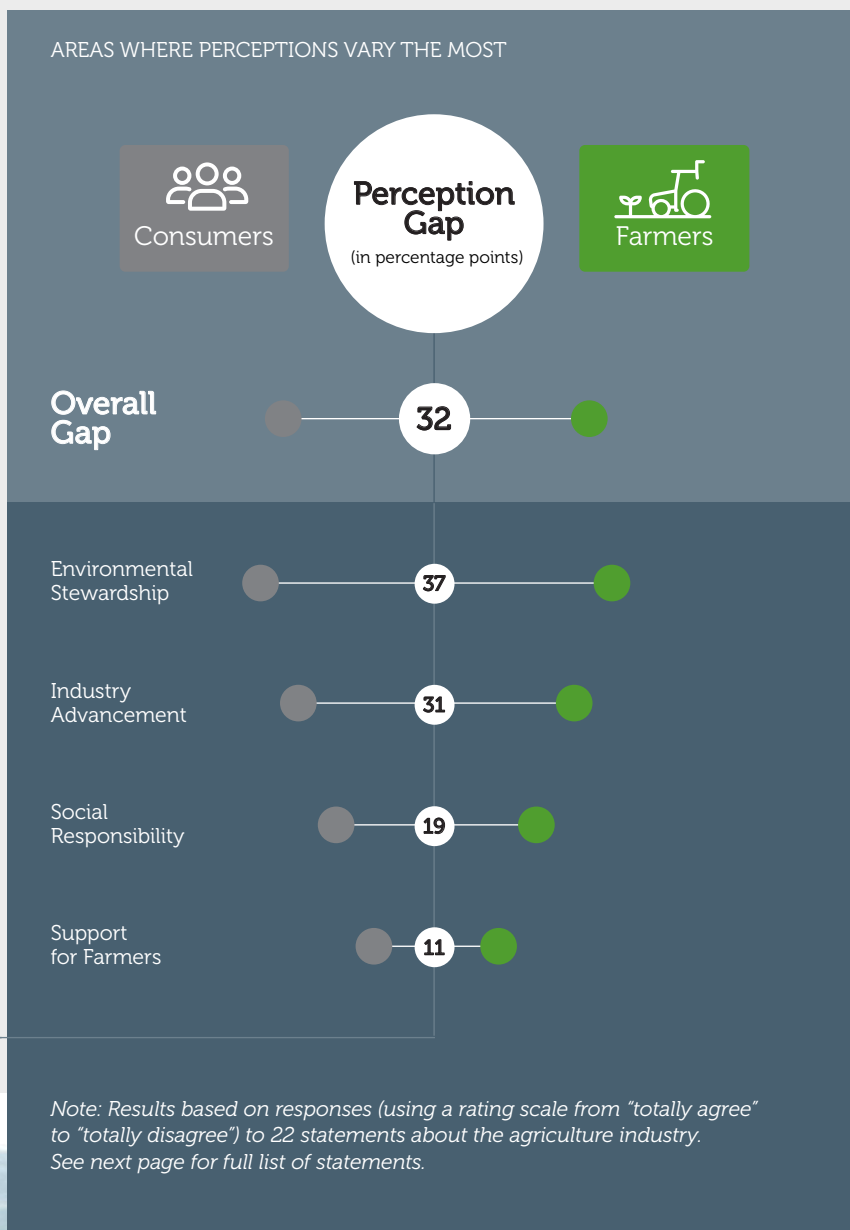


Examining Four Gaps Between Farmer and Consumer Perceptions

On critical agricultural issues, farmers and the consumers they serve have differing perceptions.

Nutrien's latest agricultural study illuminates four major areas – environmental stewardship, industry advancements, social responsibility, and societal support for farmers – where farmers and consumers see things differently.

Drawing on detailed survey data collected in Spring 2023 from 604 crop farmers and 3,003 consumers in North America (53% of respondents in the US, 47% in Canada), the study involves a relational factor analysis across 22 perceptions. The analysis finds a perception gap of 32 percentage points between consumers and farmers, with larger or smaller variances by subcategory. The largest gaps are around environmental stewardship and industry advancement, with social responsibility next on the list. Perception of societal support for farmers is an area of closer agreement that came through in the study.



Methodology

The 22 statements that consumers and farmers participating in this study were asked to agree or disagree with (using a 7-point rating scale)



- Farmers are good stewards of the environment
- Farmers are improving soil quality
- Farmers are reducing their carbon footprint
- Farmers protect the resources they use (e.g., ensures water quality, cares for soil)
- Farmers use crop inputs responsibly (e.g., pesticides, fertilizer, herbicides, fungicides)
- Farmers use more chemicals than necessary when growing food



- The industry is adopting innovative practices to be more efficient (e.g., growing more with less land)
- The industry is evolving practices to sustainably feed a growing population
- Frequently grows genetically modified crops (GMOs)
- Has careers that I would recommend to a family member or friend
- I see farmers keeping up with the pace of technology
- I see the industry keeping up with peoples' evolving dietary needs and demands
- Labor and human rights are well protected in the industry
- The industry has become more sustainable compared to 10 years ago



- Farmers have a responsibility to keep food prices down
- Farming today is worse for the environment compared to 10 years ago
- Growing more organic food would help with many of the challenges the industry is facing
- The industry should be more transparent about where food comes from



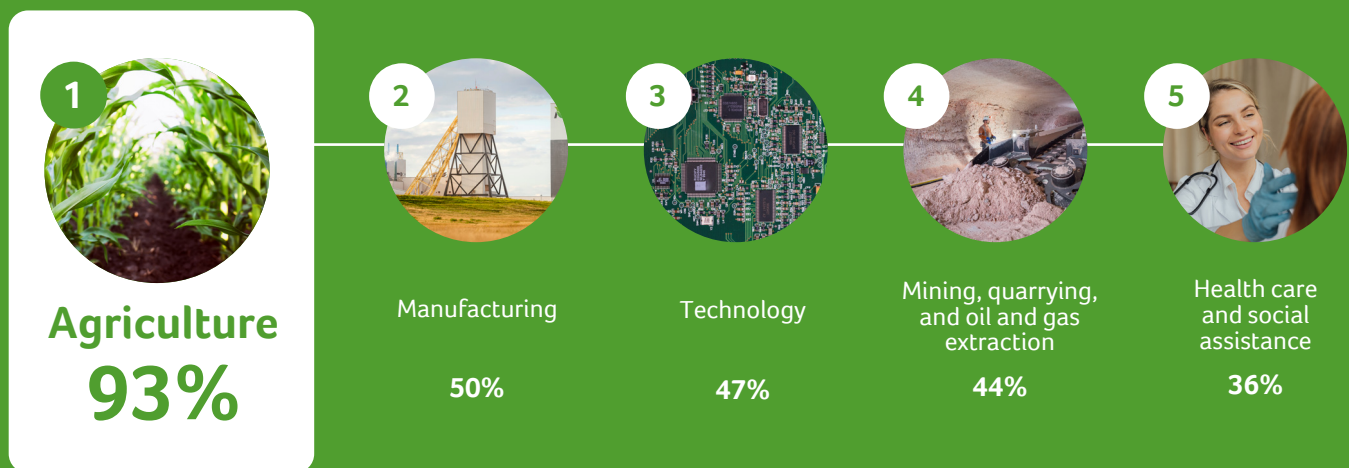
- Farmers are provided adequate support to adopt new farming practices
- Farmers enjoy an above average income
- The industry receives an adequate amount of government subsidies (support)
- There is not enough competition in the industry

Digging a bit deeper to analyze individual statements within these areas, the study finds further perception gaps. For example, when asked to agree or disagree that farmers use crop inputs responsibly, more farmers than consumers agree with the statement by a whopping 43 percentage points. A similar gulf (40 percentage points or greater) exists on topics involving organic food, environmental progress, farming careers, chemical use, and soil quality.

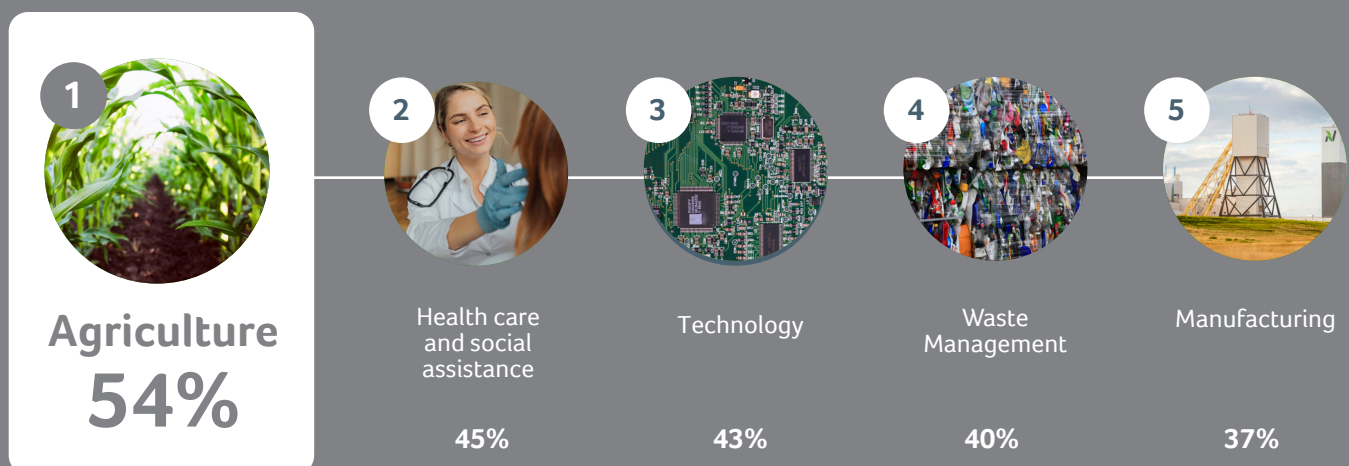
This comes despite farmers and consumers broadly agreeing on the importance of agriculture.

From a list of 16 options, both groups rank agriculture as the No. 1 most important industry when it comes to building a sustainable future. Agriculture (93%) is the overwhelming favorite for farmers, unsurprisingly, but among consumers, agriculture (54%) also leads over other sustainability-focused sectors like utilities (31%), forestry, fishing and hunting (27%), and transportation and warehousing (23%).

Farmers



Consumers



Bridging the Agriculture Perception Divide:

Areas Where Perceptions Vary the Most

In the following pages, the study details three areas where farmers and consumers see things differently – environmental stewardship, industry advancement, and social responsibility – and one area, support for farmers, where both sides display relative agreement.

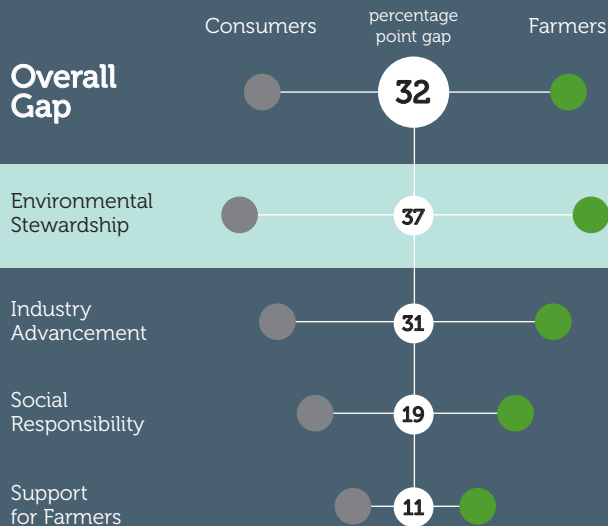




Environmental Stewardship

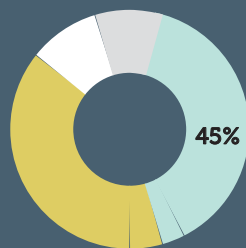
How farmers manage greenhouse gas emissions, soil quality, responsible crop inputs and overall environmental protection

Environmental impact drives a large element of public trust in the agriculture industry. As such, perception gaps can affect trust levels a great deal. This area is where the study shows the largest divide (37 percentage points overall) between what farmers and consumers believe to be true. The specific topics that are seen most differently are whether farmers use more chemicals than necessary when growing food (45 percentage points), whether farmers use crop inputs responsibly (43 percentage points), and whether farmers improve soil quality (40 percentage points).



Share of Impact:

The degree to which Environmental Stewardship has the ability to shift consumer trust in the agriculture industry



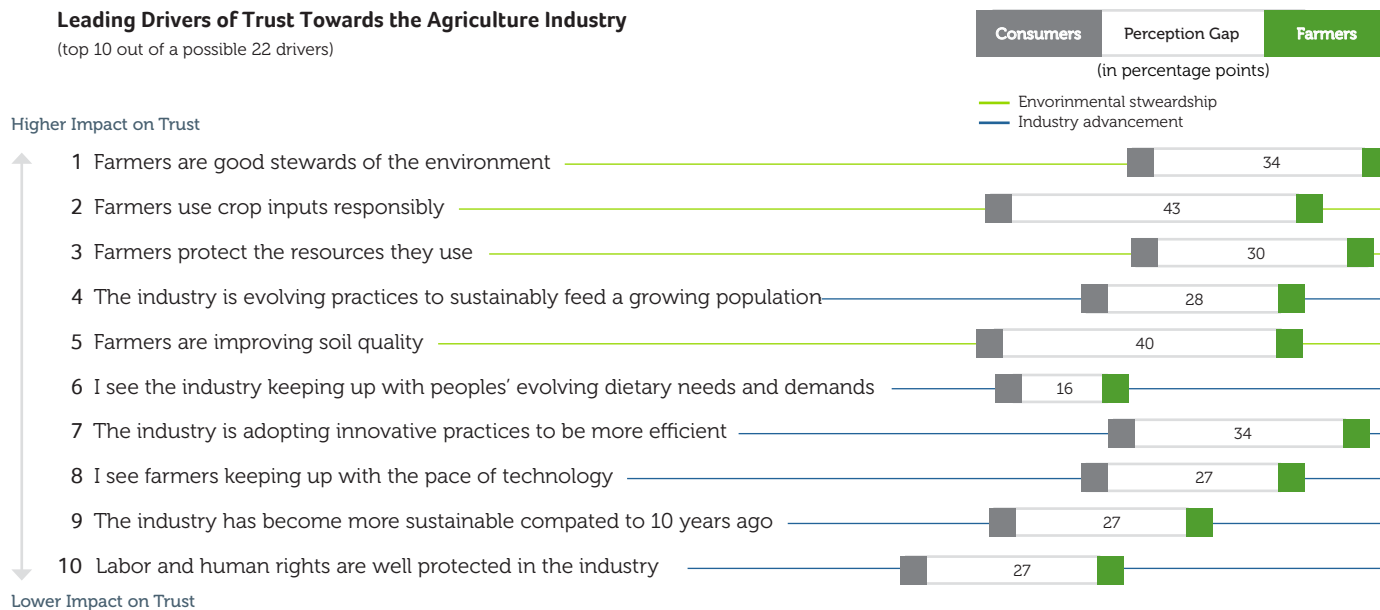
*Determined using a drivers analysis, a statistical technique, that assessed which variables (e.g., gap dimensions) have the strongest relationship with overall industry trust



The study also identifies four perceptions that impact overall trust levels in agriculture: environmental stewardship, crop inputs, resource preservation, and soil quality. By contrast, issues like labor and human rights, sustainability, and technological pace have a more moderate impact on overall trust.

Leading Drivers of Trust Towards the Agriculture Industry

(top 10 out of a possible 22 drivers)



The two topics that drive the top negative sentiments that consumers associate with the agriculture industry are food safety – including chemicals and genetically modified organisms (GMOs) – and environmental impacts.

Top of Mind Associations with Agriculture and Food Systems

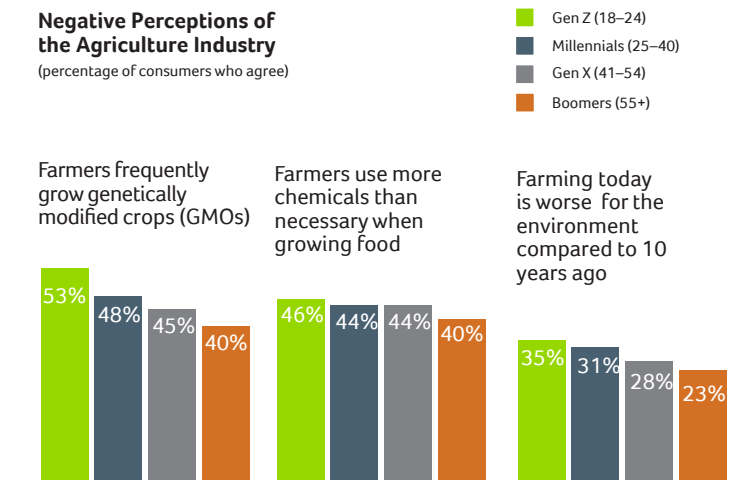
1. Food safety concerns (e.g. chemicals, pesticides, GMOs)
2. Unsustainable/negative environmental impact
3. Poor industry outlook (e.g. farmers don't make enough, land shortages, lack of farmers)

55%

Portion of consumers with a negative top of mind association about agriculture

Negative Perceptions of the Agriculture Industry

(percentage of consumers who agree)

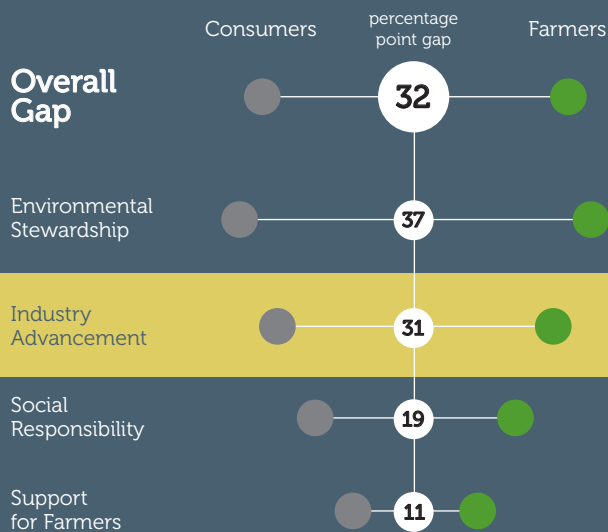


Combined, these data points paint a broad picture of negative perceptions among consumers toward the industry. It's a picture that farmers don't necessarily agree with, evidenced by the 34 percentage point gap between the good job of environmental stewardship that they believe they are doing, and what consumers believe.

As you can see, negative perceptions are more prevalent among younger consumers, with a greater percentage of Gen Z consumers saying farmers frequently grow GMOs, farmers use excessive chemicals, and that farming today is worse for the environment than it was 10 years ago.

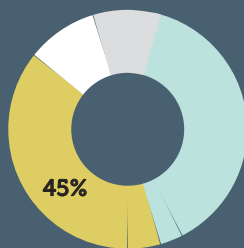
How well do farmers keep up with the pace of technology and evolving consumer diets, engage with GMOs, build appealing careers, protect labor and human rights, and more

Like environmental stewardship, industry advancement also greatly influences public trust in the agriculture industry. Although the perception gap between consumers and farmers is smaller on industry advancement issues (31 percentage points) than on environmental stewardship issues (37 percentage points), large gaps exist on subtopics like sustainability practices, innovation and efficiency, and career desirability.

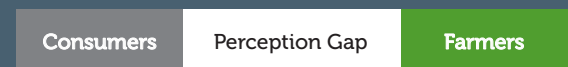


Share of Impact:

The degree to which Industry Advancement has the ability to shift consumer trust in the agriculture industry



*Determined using a drivers analysis, a statistical technique, that assessed which variables (e.g., gap dimensions) have the strongest relationship with overall industry trust



(in percentage points)

disagree

agree

The industry is evolving practices to sustainably feed a growing population



The industry is adopting innovative practices to be more efficient



I see the industry keeping up with peoples' evolving dietary needs and demands



I see farmers keeping up with the pace of technology



Frequently grows genetically modified crops (GMOs)



Has careers that I would recommend to a family member or friend



Labor and human rights are well protected in the industry



The industry has become more sustainable compared to 10 years ago

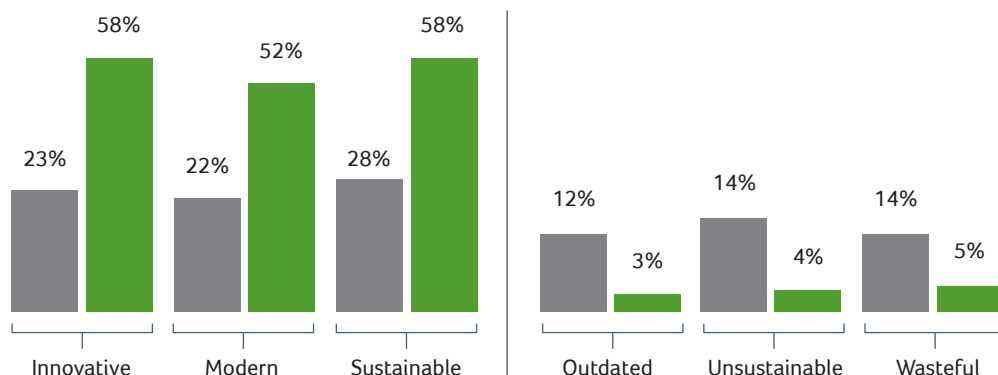


The graphic below shows the difference between how consumers view certain aspects of the industry compared to farmers. For example, most farmers believe the industry is innovative, modern, and sustainable, but less than 3 in 10 consumers agree with that perspective, with gaps ranging from 30 to 35 percentage points.

Industry Word Associations

(percentage of people who agree)

Consumers
Farmers



//

Farmers are continuously adopting new and innovative technologies to improve yield and farm efficiency."

- US farmer

//

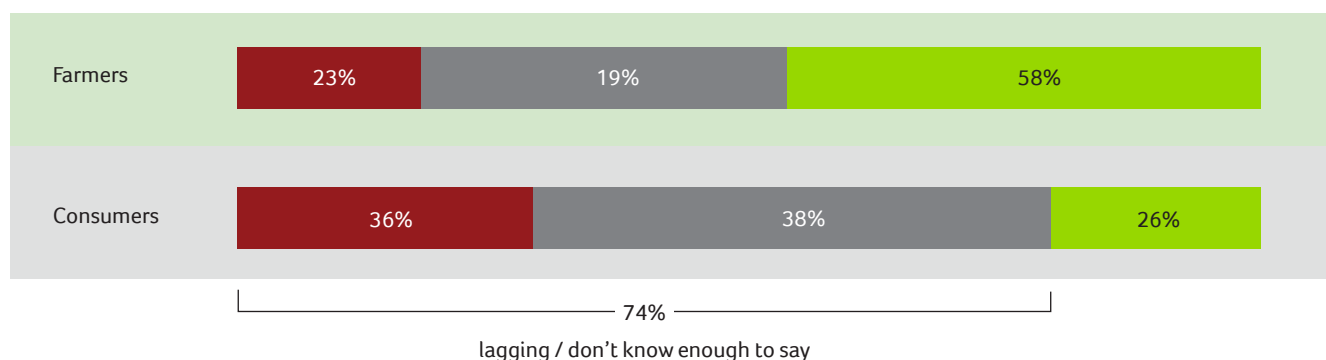
An out of date agricultural system and an unwillingness to change."

- US consumer

Perceptions on industry advancement apply at the national level, too. Nearly 6 in 10 US and Canadian farmers (58%) believe their country is leading the charge to advance sustainability in the farming and agriculture sector, but just 26% of consumers feel the same way. By contrast, more than a third of consumers believe their country is lagging in the drive to advance agricultural sustainability, while another 38% say they don't know.

Perception Around Advancing Sustainability

My country is leading in advancing sustainability
I don't know enough to say
My country is lagging in advancing sustainability

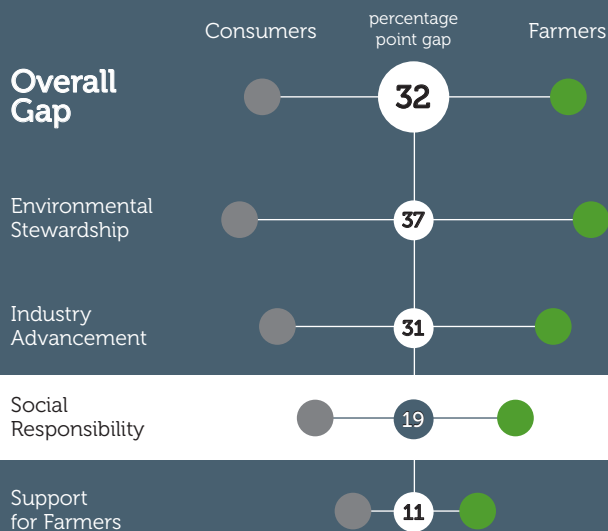




Social Responsibility

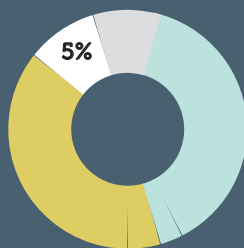
Has farming degraded the environment, how much responsibility do farmers have to keep food prices low, and issues around organic food and food transparency

While social responsibility bears less weight on public trust in the agriculture industry compared to environmental stewardship and industry advancement, the perception gap (19 percentage points) remains significant. Major gaps exist around topics like organic food (43 percentage points), environmental impact of farming (43 percentage points), and the responsibility of farmers to keep food prices down (28 percentage points).

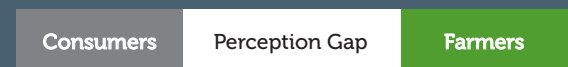


Share of Impact:

The degree to which Social Responsibility has the ability to shift consumer trust in the agriculture industry



*Determined using a drivers analysis, a statistical technique, that assessed which variables (e.g., gap dimensions) have the strongest relationship with overall industry trust



(in percentage points)

disagree

agree

Growing more organic food would help with many of the challenges the industry is facing



Farming today is worse for the environment than it was 10 years ago



The industry should be more transparent about where food comes from



Farmers have a responsibility to keep food prices down

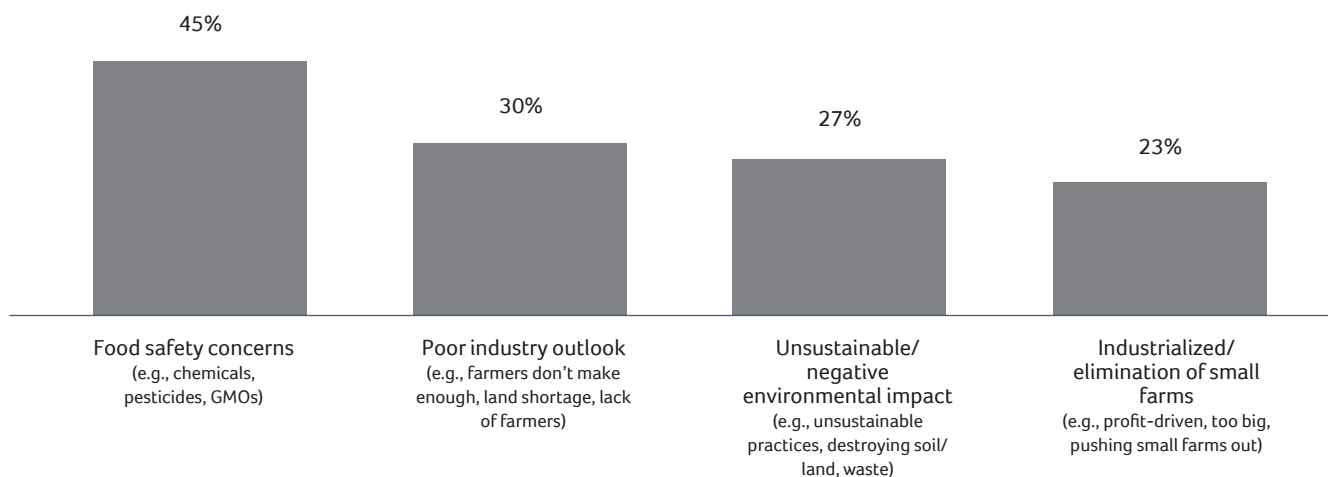


Social responsibility issues appear to be a key driver among the 19% of consumers who think the agriculture industry is on the wrong track. Top reasons driving this group include unsustainable or negative environmental impact, elimination of small farms, and food safety concerns linked to chemicals, pesticides and GMOs.

Why Consumers Believe Agriculture is on the Wrong Track

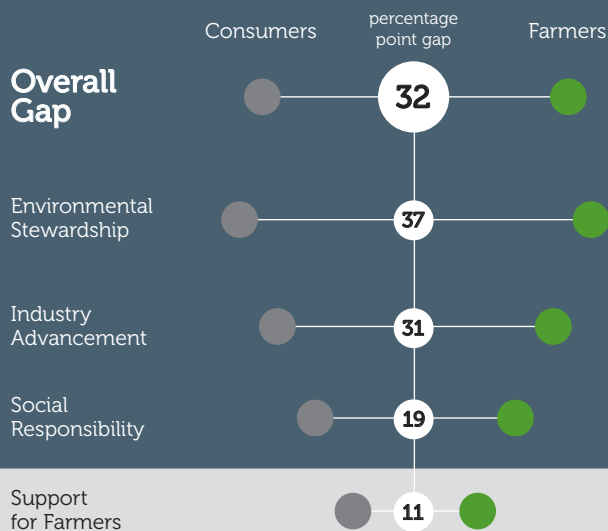
(open ended responses analyzed and categorized by topic and/or topics discussed)

Consumers



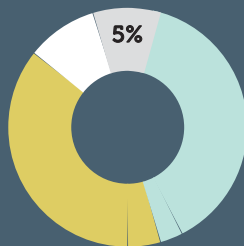
Do farmers enjoy strong incomes, are government subsidies adequate, is there fair competition, and support for new farming practices

If there's one area of common ground among farmers and consumers, it's support for farmers – in terms of the current situation and the imperative to do more. Like social responsibility, this topic holds a smaller impact on overall public trust in the agriculture industry. It's also where the perception gap (11 percentage points) between farmers and consumers is smallest, a signal of relative agreement among both groups. There are still disparate views around the sufficiency of industry competition, but both groups see things similarly when assessing farming incomes, government subsidies, and support for new farming practices.

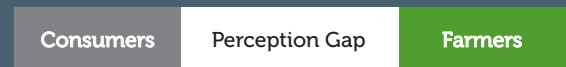


Share of Impact:

The degree to which Support for Farmers has the ability to shift consumer trust in the agriculture industry



*Determined using a drivers analysis, a statistical technique, that assessed which variables (e.g., gap dimensions) have the strongest relationship with overall industry trust



(in percentage points)

disagree

agree

Farmers are provided adequate support to adopt new farming practices



There is not enough competition in the industry



Farmers enjoy an above average income



The industry receives an adequate amount of government subsidies (support)

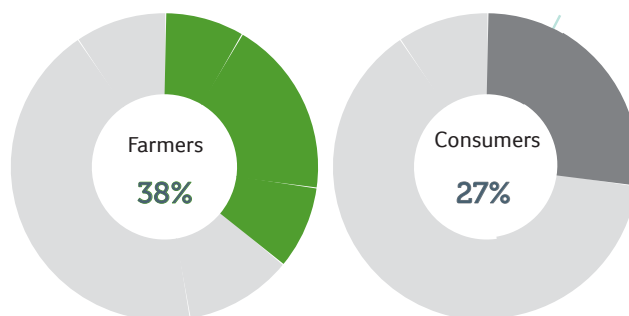


Consumers and farmers agree on a host of issues in this space, from the rising cost of food to the importance of protecting farmland resources and supporting new, young farmers. In fact, this is one area where farmers see themselves as better off – when it came to support for new farming practices (e.g., financial support, training, offerings) – than consumers perceive.

Key Issues Affecting Agriculture and Food Systems



Do Farmers Receive Adequate Support to Adopt New Farming Practices? (percentage of people who agree)

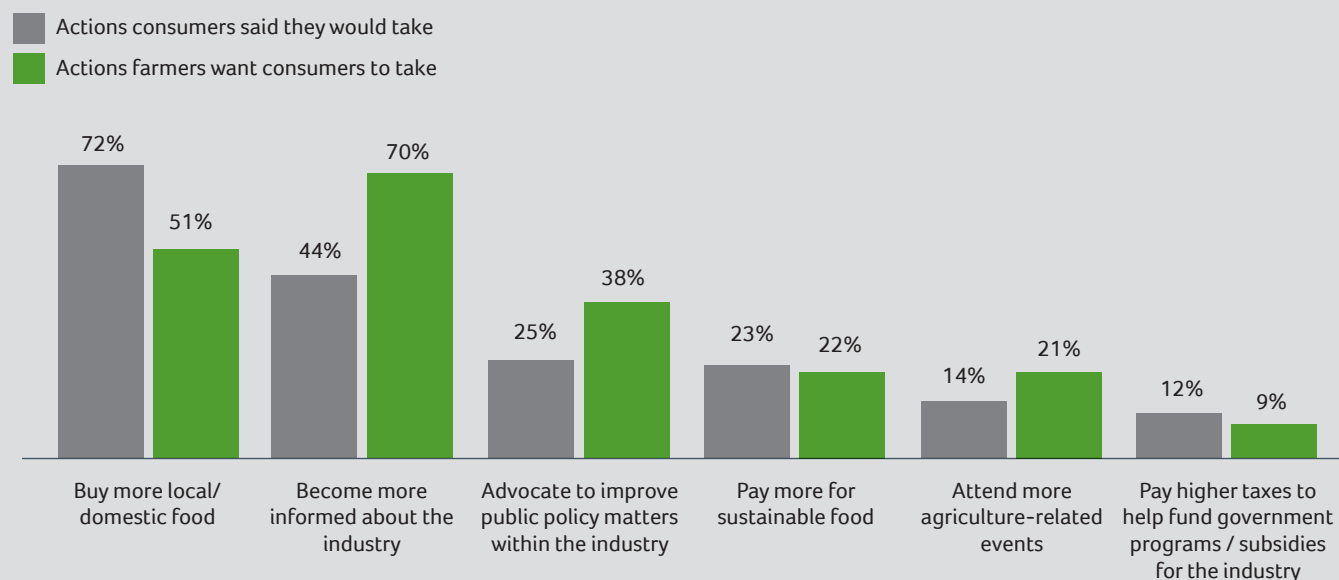


“They are trying their best to adapt their equipment and experience to improved sustainability. With increased training, government subsidies and new technology, the industry should be heading in the right direction.”

- Canadian consumer

Lastly, if you ask a farmer what they want from consumers, it is simply to become more informed about the industry.

Differing Views on How Consumers Can Support the Ag Industry (percentage of people who agree)



Conclusion:

Knowledge Matters





Conclusion: Knowledge Matters

Building knowledge is imperative to bridging these divides. Amid the backdrop of perception gaps outlined by survey data across environmental stewardship, industry advancement and social responsibility, consumers lack current knowledge but have a significant desire to gain more knowledge – more so than farmers may give them credit for.

Two data trends help illustrate this.

1.

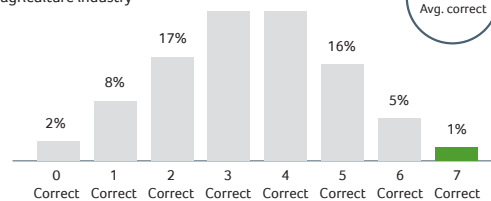
Consumers lack knowledge about agriculture. One in three consumers claim to be knowledgeable about the agriculture industry – yet these findings indicate that group is much smaller. When asked to answer seven sample questions from a basic agriculture knowledge assessment, just 22% got five or more answers correct, while only 1% got all seven.

Consumers' average performance on basic agriculture knowledge assessment

Percentage of consumers who say they are knowledgeable about the agriculture industry

33%

Percentage who correctly answered questions about the agriculture industry



3.4/7
Avg. correct

The expectation of additional learning is another gap. Seven in 10 farmers want the public to learn more about the industry.

For farmers, closing that gap is a priority, as they point to the lack of adequate public knowledge and misinformation around the food supply chain as two of the top three issues affecting the industry.

Farmers - Top Five Issues Affecting the Ag Industry

#1

Rising cost of growing food

#2

Lack of adequate knowledge about agriculture among consumers

#3

Misperception about where food comes from / how it's produced

#4

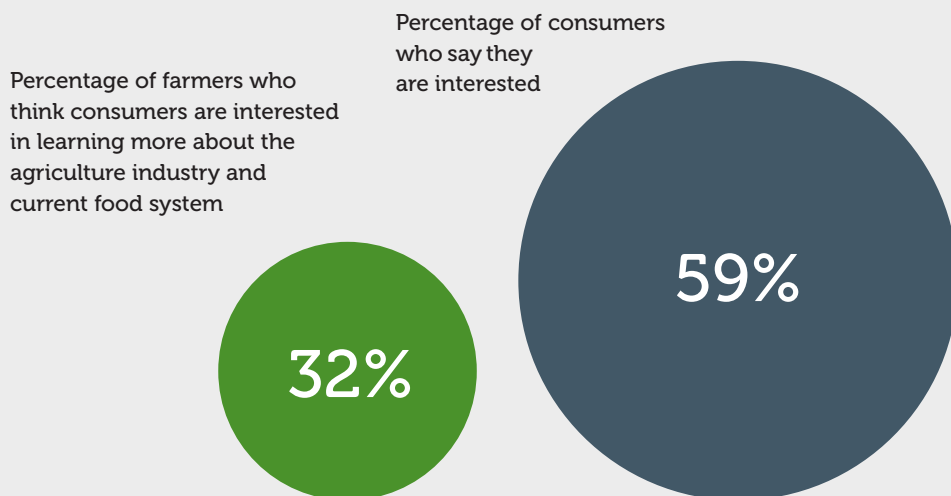
Trade issues

#5

Protecting farmland resources and supporting young and new farmers

2.

Despite the lack of knowledge, many consumers want to learn more. Nearly 3 in 5 consumers (59%) say they're interested in their country's agriculture industry and current food system. That's nearly double what farmers believe that consumer interest to be (32%).



We need more information on this topic. We need more educational resources."

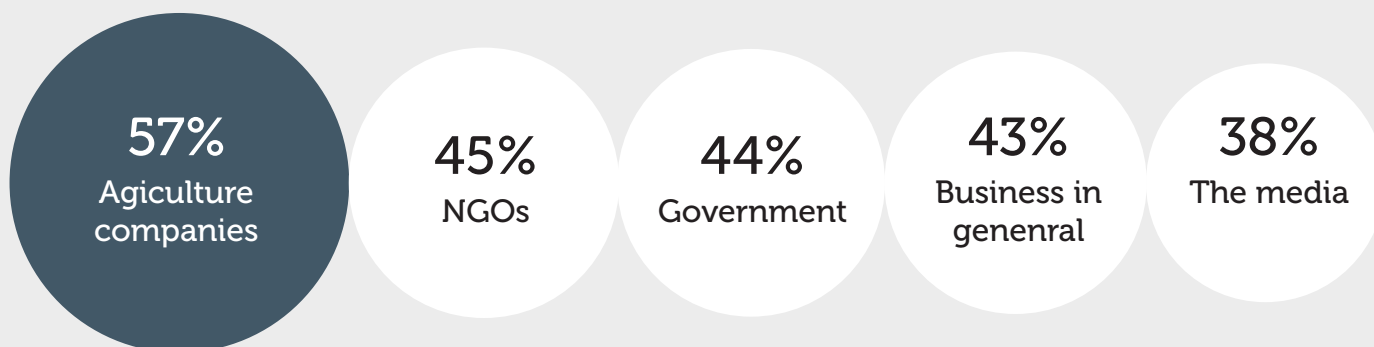
- US consumer



Agriculture should be more involved in teaching the younger generations about how farming affects everyone.

- Canadian consumer

How do they gain that knowledge? Consumers view agriculture companies as the best source. Relative to public and non-government entities, businesses at large, and the media, consumers trust agricultural companies to provide credible information about their industry.



With knowledge as the pathway, the perception gaps across environmental stewardship, industry advancement and social responsibility can be narrowed. In the future, progress can be measured against these perception gaps, signaling a meeting of the minds between farmer and consumer, with shared goals as the outcome. This study sheds light on the gaps – but, more importantly, the opportunities for bridge-building.

