



**CORTEVA™**  
agriscience

# SUSTAINABLE FOOD SYSTEMS

Farmer and consumer views on  
sustainable agriculture in Europe

**KEEP GROWING.**



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*Our new research study with the Financial Times Group reveals that European consumers not only want sustainable food, they support innovations like CRISPR, that are key to sustainable food production. This report is a first step in our commitment as a new company to support farmers in delivering sustainable food to European consumers.*

*Igor Teslenko  
President, Corteva Europe*

# EXECUTIVE SUMMARY

The views of Europe's farmers on key issues facing the agricultural industry are more closely aligned with those of consumers than public perceptions might suggest. Sustainable Food Systems, a research study commissioned by Corteva and conducted by Longitude, a Financial Times Group company, reveals that farmers and consumers share a strong desire for greater sustainability; growing anxiety about pollution and environmental damage; and a willingness to engage with new farming technologies that could produce more nutritious food.

While many farmers already have ambitious plans, aspiration alone will not be enough to drive a wholesale shift in practices: significant barriers still stand in the way of greater sustainability.

Most striking among these is the question of who will pay for increased sustainability measures. Consumers are willing to bear their share of the cost, but those farmers currently leading the way on sustainability are too often incurring financial penalties. The rest of the food industry, including producers and distributors, must now step up to support them.

It is also crucial to resolve the question of how to innovate safely and ethically in areas such as plant-breeding science, with policymakers seeking to balance potential health and environmental benefits with their duty to protect the public.

Farmers can shape this debate. Our research shows not only that the farming industry is instinctively moving toward greater sustainability, but also that consumers hold the sector in high regard. This trust is precious, and farmers should not take it for granted. Moreover, by capitalizing on their relationship with consumers, they can transform agricultural practices for the better.

The research is based on two surveys.

In the first, we spoke to 600 farm owners and managers across France, Germany, Italy, Romania, the UK, and Ukraine. These farmers, whose landholdings range in size from small farms below 20 hectares to larger properties of more than 100 hectares, produce a wide range of food crops.

In the second, we spoke to 2,500 consumers in France, Germany, Italy, the Netherlands, Poland, the UK, and Ukraine.

## KEY FINDINGS

### **Farmers and consumers see sustainability as a priority**

More than half of European consumers (51%) say that reducing artificial pesticides is the issue they most care about in relation to sustainably produced food. This is closely followed by a preference for reducing food waste (48%) and ensuring that small farmers and community farms are able to trade on fair terms (35%). Reflecting social trends, the majority of farmers are already limiting their use of artificial pest controls or have plans to do so in the next two years; this is the sustainability practice that the research suggests is most popular among European farmers.

### **Farmers and consumers welcome new plant-breeding techniques**

Technology linked to sustainable agriculture and the production of more nutritious food enjoys strong support from farmers and consumers alike. Sixty-three percent of Europe's farmers plan to implement new plant-breeding techniques over the next five years, with enhancing the nutritional value of crops and removing al-

largens the most widely held priorities. Among consumers, more than half (53%) say they are likely to accept these techniques when they buy sustainably produced food, and only 11% consider this unlikely.

### **Europe's farmers face a range of challenges**

One-third of farmers see unfavorable domestic agricultural policies as their greatest challenge today. However, 34% of farmers expect pollution to become their biggest problem in three to five years' time. The research also highlights how the challenges farmers face vary considerably from country to country. For example, UK farmers are more concerned with changing consumer preferences than their counterparts elsewhere, whereas French farmers are most anxious about climate-related problems.

### **Committing to sustainability is tough on the pocket**

Many farmers have already adopted a broad range of sustainability practices, but we have identified several "sustainability champions" – farmers who have already implemented three or more sustainable agricultural practices. This group cites financial pressures as their greatest challenge. One explanation for this may be that becoming a sustainability champion requires a greater level of investment. Some 69% of the champions say that applying sustainable agricultural practices requires them to invest more money, compared with 24% of other farmers.

The champions also feel that they are unable to pass the cost of increased sustainability down the supply chain. Some 44% say they feel under pressure from food producers and distributors to keep their prices low, which is more than twice the percentage of farmers with two or fewer sustainability measures who say they feel this pressure.

### **Quality not quantity: nutrition above yield**

Only 14% of farmers say the most important benefit of new plant-breeding techniques is increased yield. Health and sustainability improvements are widely regarded as more significant in the current social climate. In addition to the 24% of farmers who see enhanced nutritional value of crops as the greatest benefit of new plant-breeding techniques, 17% are enthused about the potential to cut food waste, and 15% cite the reduced need for pest control.



## **SUSTAINABILITY CHAMPIONS**

*We compared the answers of those farmers who have implemented three or more sustainable agricultural practices with those of the rest. Out of the 600 European farmers surveyed, 78% say they have implemented up to two sustainable practices, and 22% say they have implemented three or more sustainable practices. We refer to this latter group as the "sustainability champions." The group consists of 31% small farms, 45% medium-sized farms, and 24% large farms. France and Italy have the highest percentage of sustainability champions (33% and 25% respectively). The differences between the sustainability champions and the rest of the farmers are telling, and are referenced throughout the report.*



Part 1

# THE SUSTAINABILITY CONSENSUS

The intensification of agricultural activity and improved farming productivity over the past 50 years have enabled Europe's farmers to supply produce more abundantly than ever before. But since the plentiful harvests of the green revolution in the 1960s, innovation in the sector has stagnated and new challenges are rapidly coming to the fore. The Global Agricultural Productivity (GAP) Index™ in 2018 showed, for the fifth year in a row, that global productivity growth "is not accelerating fast enough to meet the food, feed, fiber and fuel needs" of a growing population.<sup>1</sup>

Stakeholders all along the food supply chain are convinced that the current system needs to change, and there is a rising emphasis on innovation and sustainability. The first step is to create awareness that the current system does not deliver, says Ewald Rametsteiner, Program Coordinator of the UN Food and Agriculture Organization's (FAO) Sustainable Agriculture Program. "The food system that currently overproduces in some parts and underdelivers in others creates health problems and damages the environment," he warns. However, he also notes that the food system's emphasis on cheap staple food allows the provision of basic food to many who would otherwise go hungry, and this should not go unnoticed.

As we become more conscious of the impact nutritious food can have on human health and the prevention of lifestyle diseases, consumer preferences are beginning to drive some of that change. Three-quarters of Europe's consumers say they believe that buying sustainably produced food contributes to their health and well-being.

Wendell Berry, author, poet, farmer and well-known American personality, coined the phrase "eating is farming by proxy." It is a notion that David Nally, Geographer and Fellow of Jesus College, Cambridge, says he often cites. "He meant that every time we consume, we are influencing – if never fully determining – how agriculture is conducted," explains Nally.

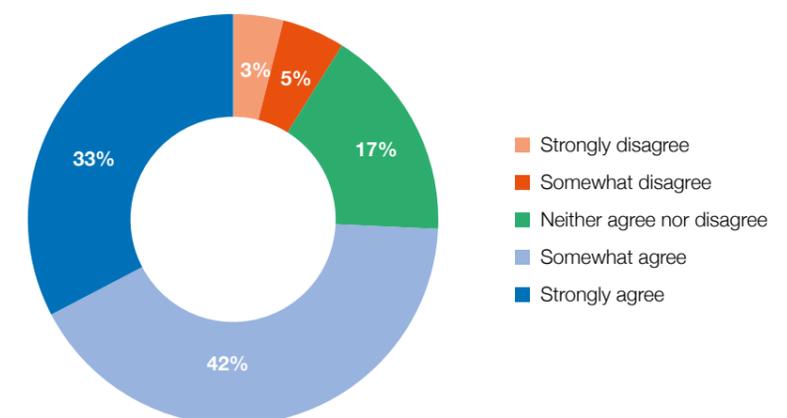
### Changes in the shopping basket

Of course, taste will remain a deciding factor in consumer choices. But when it comes to sustainability, what are the criteria consumers care about the most?

More than half (51%) say that avoiding foods produced using artificial pesticides is now a major consideration when they shop for sustainable groceries. Almost as many (48%) are concerned about food waste, while fair trade

<sup>1</sup> 2018 Global Agricultural Productivity Report® (GAP Report®), Global Harvest Initiative, Washington, D.C., October 2018  
[https://globalagriculturalproductivity.org/wp-content/uploads/2018/10/Global-Agricultural-Productivity-Index\\_2018-GAP-Report.pdf](https://globalagriculturalproductivity.org/wp-content/uploads/2018/10/Global-Agricultural-Productivity-Index_2018-GAP-Report.pdf)

**Figure 1: Health and well-being drive shopping behavior**  
 How strongly do you agree with the following statement? I believe buying sustainably produced food contributes to my health and well-being.



with small farmers is also an important concern (35%).

Food companies are under scrutiny from consumers who want them to align with higher sustainability standards, and they are highly conscious of shifting preferences. "There is a food revolution happening, and it is led by what we call the food generation: people aspire to better, more sustainable, and authentic products," says Isabelle Grosmaître, Alimentation Initiative Catalyst at French multinational Danone.

A clear trend among European consumers is a desire for "clean" and organic food that limits chemicals intake. Europe's food and public health regulation is keeping pace with this trend by becoming more restrictive, and food companies are engaging with the transition out of necessity. Ruth Thomas, Director of the Global Agribusiness Alliance and Soft Commodities Forum, World Business Council for Sustainable Development (WBCSD), suggests orientating the discourse toward rewarding progress over perfection. "Transparency is key to building trust," she says. "But the expectation from some stakeholders to demonstrate perfection can deter companies from coming to the table."

### Farmers under pressure

The drive for change is unlikely to ease off. Prompted by both environmental factors and consumer preferences – whether expressed directly or through the supply chain – farmers are also increasingly focusing on developing sustainable practices.

"Farmers and food companies know that much is expected," says David Wilkinson, Senior Director of Agricultural Procurement for Europe and Sub-Saharan Africa at PepsiCo. "We must grow more food in a more efficient manner with less environmental impact, while also recognizing that consumers are looking for high quality and more natural products. We need to support them to grow sustainably and also ensure crop resilience – especially when you consider the effects of climate change."

Farmers are also seeking to establish sustainable practices in order to counter the threats of pollution and climate change. However, they feel that policymakers are currently serving them poorly, while external threats loom large. Today, 33% of European farmers consider unfavorable domestic policy to be the most significant challenge they face; however, pollution, which is currently a prominent threat for 28%, is expected to top the list in the next three to five years. In three to five years' time, 26% of farmers anticipate pest pressures to be a strong concern, alongside financial challenges and changing consumer demands.

They face some tough choices, but farmers across Europe recognize the imperative for sustainability. In Italy and Germany, the majority of farmers say they implement sustainability practices in order to improve soil quality. In the UK, 52% of farmers are anxious to lower carbon emissions and preserve water and natural resources.

"It's not just about selling good products; it's about how we can really foster healthier and

more sustainable practices," says Danone's Isabelle Grosmaître. "And this requires coalitions of the willing, as we cannot achieve this alone."

Against this backdrop, farmers are turning to more environmentally friendly practices. Many of them (62%) have limited their use of artificial pesticides or plan to do so within two years. Half are embracing precision farming and new plant-breeding techniques, while significant numbers are exploring a range of other sustainability measures.

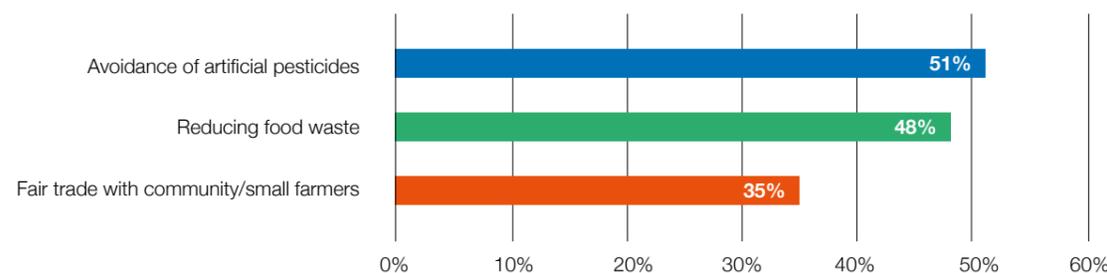
Ewald Rametsteiner of the FAO says new plant-breeding techniques are currently a hot topic that will also likely generate investment. "The focus has been on high yield without considering climate change and the high fertilizer and pesticide input that this type of agriculture often needs," he says. "A lot of current agriculture is high input and high maintenance, and, in

a way, also high risk. Is it really the way forward? Or are we on the wrong track to believe that the future could be a large-scale continuation of what we're doing, just with a bit more technology?"

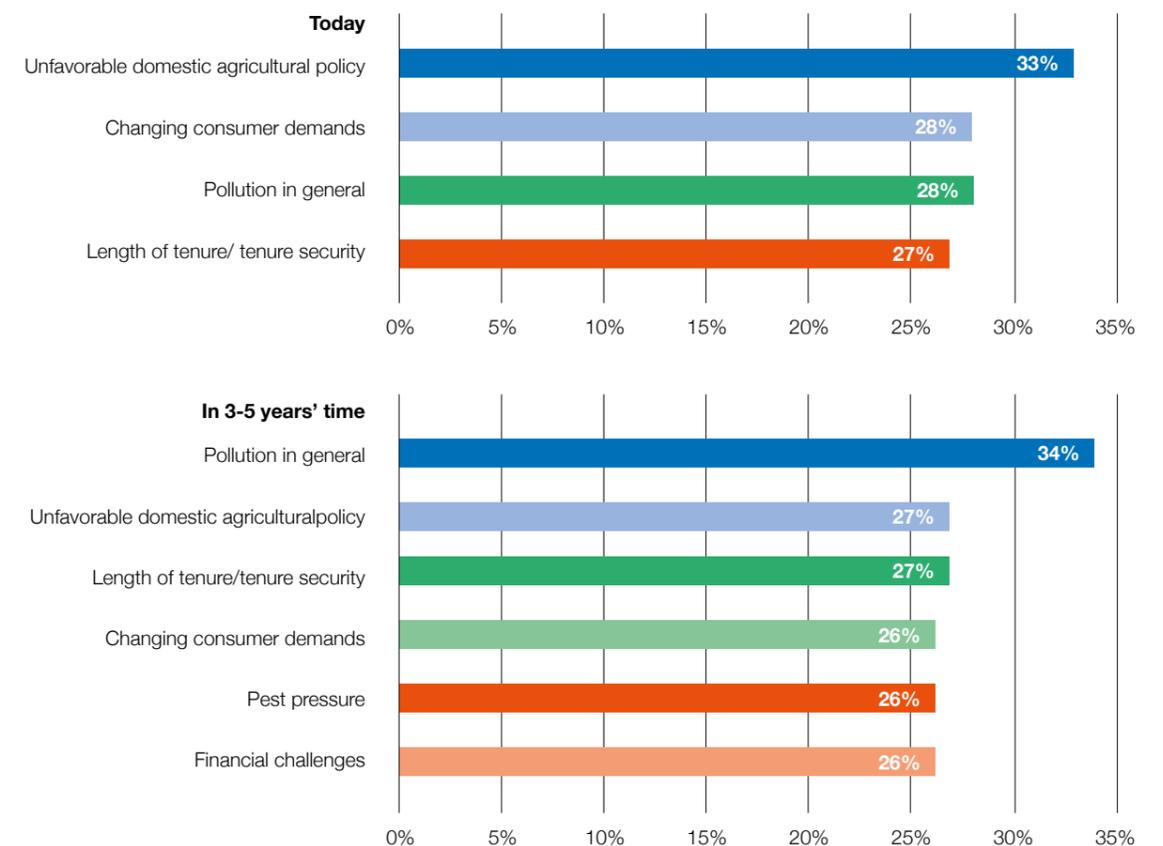
**34% OF EUROPEAN FARMERS SEE POLLUTION AS THE GREATEST CHALLENGE OVER THE NEXT 3-5 YEARS**

"Given the challenges ahead, technology has a role, but it's not a silver bullet," he adds. "Ignoring biotechnology opportunities could be just as detrimental."

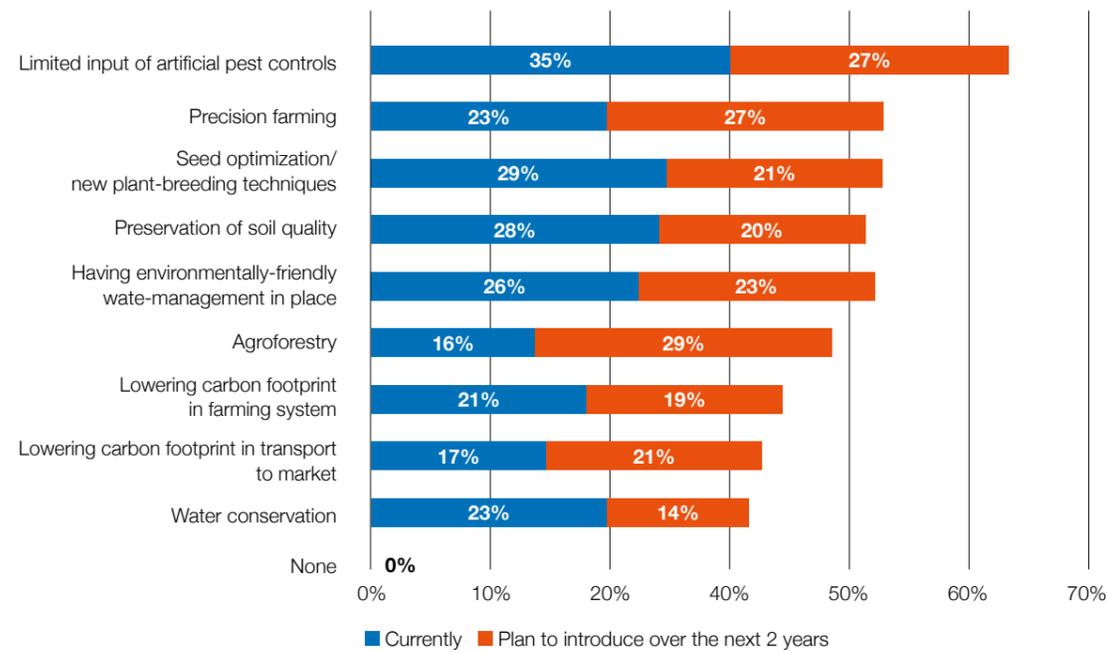
**Figure 2: Consumer preferences are clear**  
Which of the following do you care about the most when shopping for sustainably produced foods?



**Figure 3: Policy and pollution concentrate minds**  
What currently presents the greatest challenge to your farm?

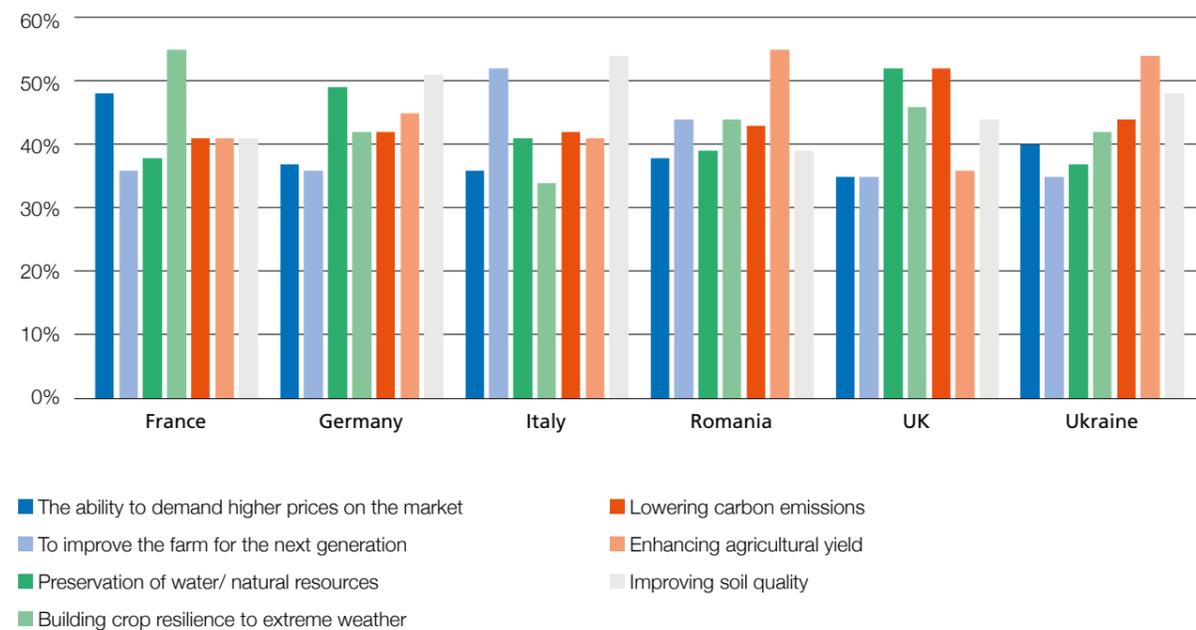


**Figure 4: Sustainability is on the rise**



**Figure 5: Soil quality is driving the sustainability agenda**

What are your main reasons for implementing sustainable farming practices?



*"We must grow more food in a more efficient manner with less environmental impact, while also recognizing that consumers are looking for high quality and more natural products. We need to support them to grow sustainably and also ensure crop resilience – especially when you consider the effects of climate change."*

David Wilkinson  
Senior Director of Agricultural Procurement  
Europe and Sub-Saharan Africa  
PepsiCo



Part 2

# PICKING UP THE SUSTAINABILITY BILL

Consumers, food producers and farmers may agree that increasing sustainability and building resilience in agriculture is essential, but who should pay for it?

Our research suggests that those farmers who have most wholeheartedly embraced sustainable practices now face greater financial challenges than their peers who have resisted change.

Many farmers are now responding to the demand for more sustainable practices by limiting use of artificial pesticides and adopting strategies such as agroforestry, soil-quality preservation, precision farming, and water conservation. About one-fifth of these farmers – the sustainability champions – are embracing three or more of these sustainable practices.

However, embracing sustainability can affect a farmer's bank balance, warns Michael Goebels, Director of Corporate Responsibility at international wholesaler Metro AG. "Most of the time, more sustainable food products are more

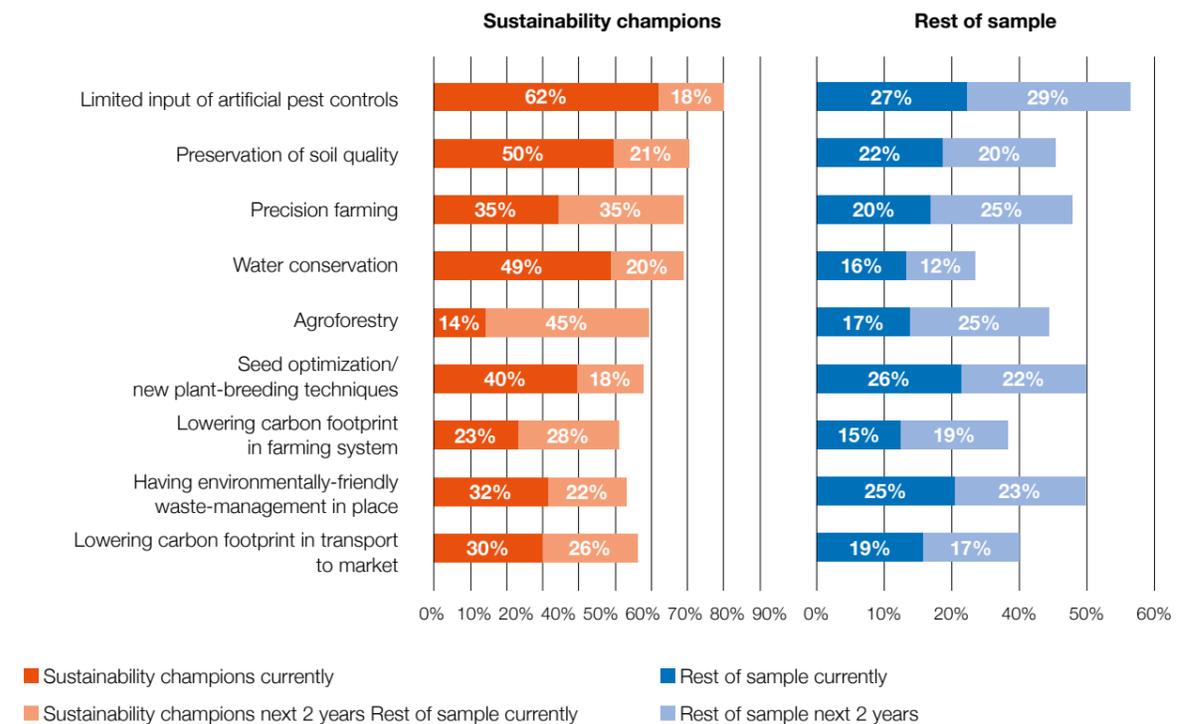
expensive – or to put it differently, food is currently sold below its worth in many cases," he says. "The question is, who will pay for higher food prices at the end of the day? The supplier, the retailer, or the customer? I really believe that the solution must be a collaborative approach."

**69% OF SUSTAINABILITY CHAMPIONS HAVE TO INVEST MORE MONEY TO IMPLEMENT SUSTAINABLE PRACTICES**

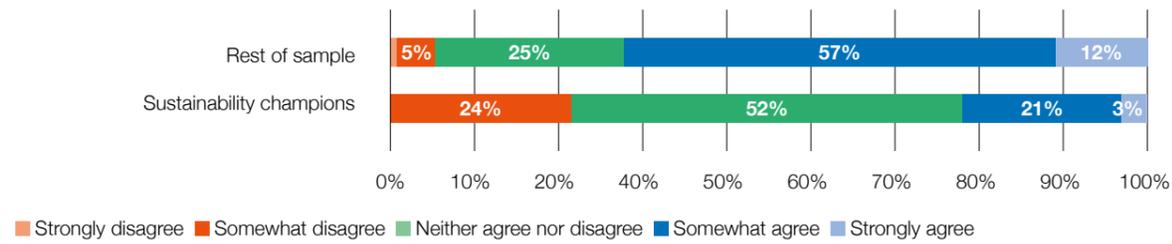
Our research bears out his warning. More than two-thirds of the sustainability champions (69%) say they have to invest more money to implement sustainable agricultural practices, while only 24% of other farmers say the same. Almost one-third of the champions (32%) complain they face financial challenges, compared with just 22% of their peers.

Understandably, the farmers driving change are nervous about their ability to pass on the cost.

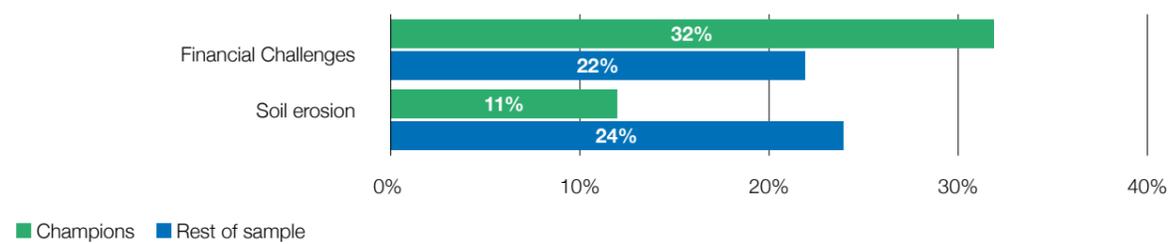
**Figure 1: Meet the sustainability champions**  
Those who are currently applying at least three of the below sustainable practices are defined as sustainability champions



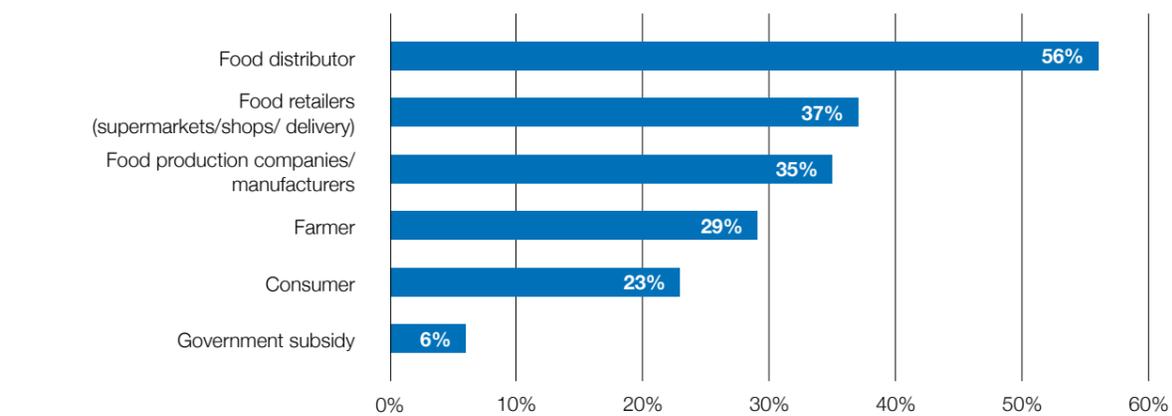
**Figure 2: Sustainability comes at a cost**  
I have to invest more money to apply sustainable agricultural practices.



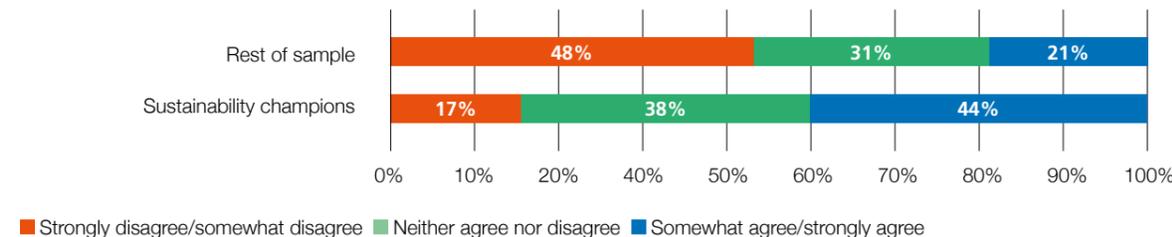
**What currently presents the greatest challenge to your farm?**



**Figure 3: Sharing the cost of sustainability will relieve the pressure on farmers**  
Where in the supply chain the additional cost for sustainability should be allocated?



**I am under pressure by food producers/ manufacturers and distributors to keep my prices low.**



A considerable percentage of sustainability champions (44%) say they feel under an obligation from food producers and distributors to keep their prices low.

Farmers want to see the cost of greater sustainability shared more fairly. The majority (56%) believe that at least some of this cost should be borne by food distributors, while more than one-third (37%) call for food retailers to pitch in. This does not mean, however, that farmers necessarily think the supply chain should take full responsibility: 29% believe farmers themselves should accept higher costs, while 23% say the consumer should shoulder some of the burden.

**The cost of change**

Assuming that farmers and the food industry are able to work together, the shift to sustainability can unlock significant value for both sides. Some 56% of Europe's farmers believe that consumers will demand more sustainably produced foods – and 42% of farmers have already changed their planning accordingly.

"We want to ensure that our members' supply chains are future-proofed by having a sufficient supply of agricultural commodities to meet their needs," says Adrian Greet, Director-General of the Sustainable Agriculture Initiative Platform, an international not-for-profit group comprising some 100 companies and organizations. "As primary producers, farmers are the linchpins of food production and must therefore be in a position to meet demand. In order to achieve this, farms must be financially viable and increasingly resilient to adapt to the environmental and

social changes which are now a prerequisite for producing food in a more sustainable way."

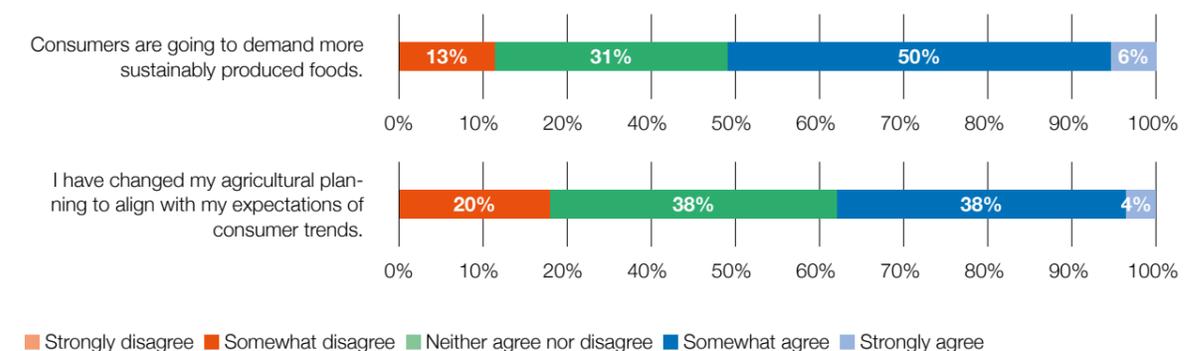
**56% OF FARMERS EXPECT CONSUMERS TO DEMAND MORE SUSTAINABLY PRODUCED FOODS**

However, the sustainability champions are more likely to fear that they will not get their fair share. Some 43% (compared with only 25% of other farmers) believe that profit margins must be cut in the supply chain in order to meet consumer demand for sustainably produced foods.

**42% OF FARMERS HAVE CHANGED THEIR AGRICULTURAL PLANNING TO ALIGN WITH THEIR EXPECTATION OF CONSUMER TRENDS**

But farmers are not alone. Food producers are prepared to help, says Luigi Ganazzoli, Vice-President of Purchasing at Italian food company Barilla, because it is in their interests to do so. "We promote more efficient cropping systems to obtain safe and high-quality agricultural products while also protecting and improving the environment and the social and economic conditions of farmers," says Ganazzoli. "In doing that, we recognize a premium to farmers when they apply our sustainable ag-

**Figure 4: Shifting patterns impact agriculture**



ricultural practices, and we are rewarded with higher durum [wheat] quality."

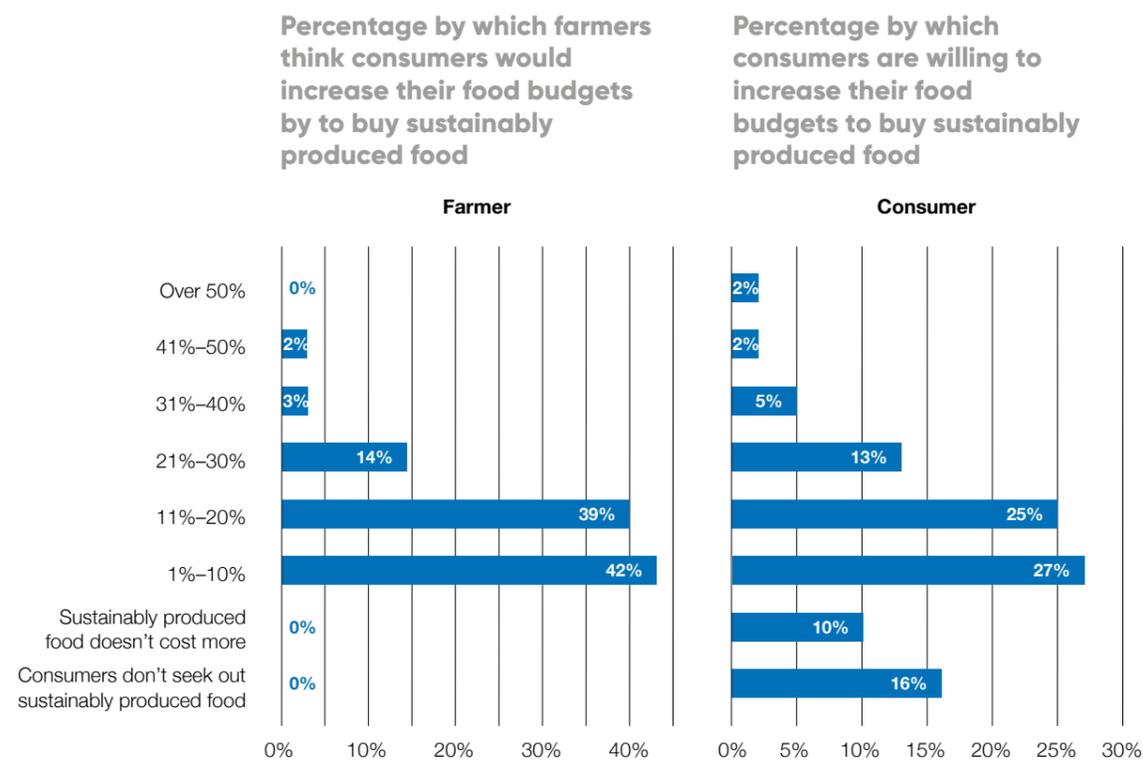
The evidence suggests that consumers are also prepared to pay more for food that has been produced sustainably – often significantly more. Over half of European consumers surveyed (52%) say they would be prepared to increase their budgets by up to 20% for food that is better aligned with their ethical preferences. Most importantly, farmers and consumers agree on the need to reward the farming industry for shifting to more sustainable practices.

Nevertheless, market realities do not always reflect such principles – and some in the food industry now believe that intervention is necessary. "It's a fairy tale to think the offer and demand on agriculture products are giving a fair and efficient market price," warns Eric Soubeiran, Vice-President for Nature & Water Cycle at Danone. "It is very difficult for farmers to protect themselves as they invest, if what they earn is only based on the quantity of what they produce."

Lydia Gerratt, Managing Director at Lydia Gerratt Consulting and a former buyer for UK supermarket chain Waitrose, believes that greater transparency will be an important starting point for any reform. She acknowledges that "there is a decent chunk of consumers who absolutely will pay extra for sustainably produced food, as long as they believe that the products really qualify as sustainable." Consumers are not always given the right information to make informed choices. "Certifications such as the Soil Association and Fairtrade are often the only way for the consumer to know," says Gerratt.

"If you are shopping in a supermarket, it is very hard, for example, to know whether chemicals or pesticides have been used, because there isn't any information on the packaging," she says.

**Figure 5: Farmers and consumers are aligned on price**



*"As primary producers, farmers are the linchpins of food production and must therefore be in a position to meet demand. In order to achieve this, farms must be financially viable and increasingly resilient to adapt to the environmental and social changes which are now a prerequisite for producing food in a more sustainable way."*

**Adrian Greet**  
 Director-General  
 Sustainable Agriculture Initiative Platform  
 International not-for-profit group  
 with 100 member organizations



As farmers seek to improve the quality and yield of the crops they grow – and move beyond reliance on artificial pesticides – innovative plant-breeding science has much to offer. And despite some public nervousness, our research suggests that consumers will welcome new plant-breeding techniques if those techniques contribute to human and environmental health.

Policymakers continue to debate the science of plant-breeding. New techniques, such as the gene-editing of plants through methods such as CRISPR, which cuts and “edits” strands of DNA, can enable farmers to drastically reduce their use of pesticides, while boosting the resilience of crops to extreme weather and enriching their nutrient content. Such innovation could prove transformative for agriculture, but in 2018 the European Court of Justice ruled gene-editing to be illegal in the European Union.

However, consumers appear to be running ahead of lawmakers. More than half (53%) say they would be unlikely to have a problem with buying sustainably produced foods developed with new plant-breeding techniques.

**Nutrition is on the consumer’s mind**

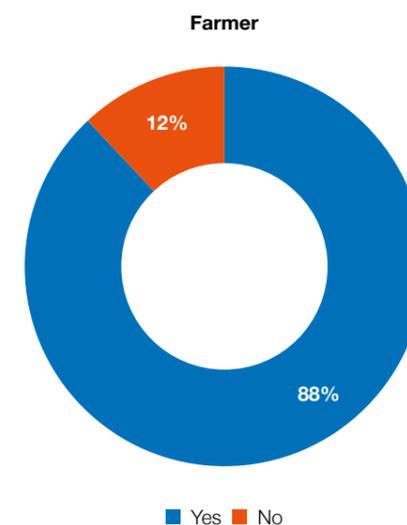
Farmers recognize this openness to innovation. Almost nine in 10 (88%) believe that consumers would pay more for goods produced with new plant-breeding techniques if these were shown to be contributing to sustainable agriculture.

**53% OF EUROPEAN CONSUMERS SAY THEY WOULD BE LIKELY TO BUY SUSTAINABLY PRODUCED FOODS DEVELOPED WITH NEW PLANT-BREEDING TECHNIQUES**

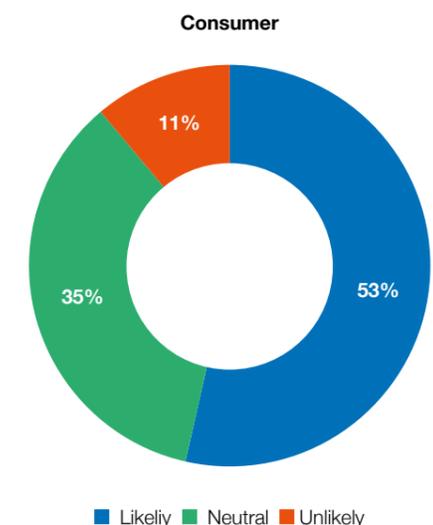
Many farmers are ready to make the case, says Danone’s Eric Soubeiran. “There is a misconception that the farming world is conservative,” he says. “Farmers are constantly adapting, and the capacity and rate of adoption of new technologies and innovation in agriculture is directly correlated with the capacity of impacting either the efficiency, the yield, or the quality of life for farmers.” Crucially, many farmers see the potential of new plant-breeding techniques in

**Figure 1: Consumers and farmers back plant-breeding innovation**

Do you think consumers are willing to pay more for products of new plant-breeding techniques if these contribute to sustainable food production?

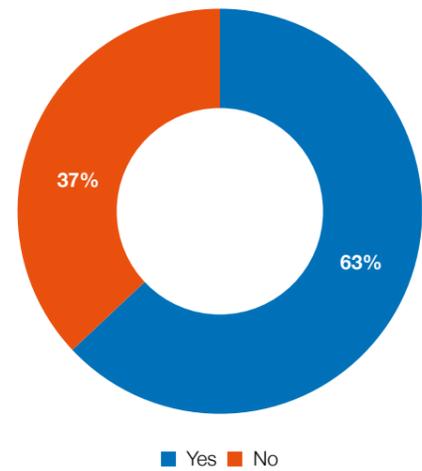


When considering buying sustainability produced food, how likely/unlikely are you to accept new plant-breeding-tools?

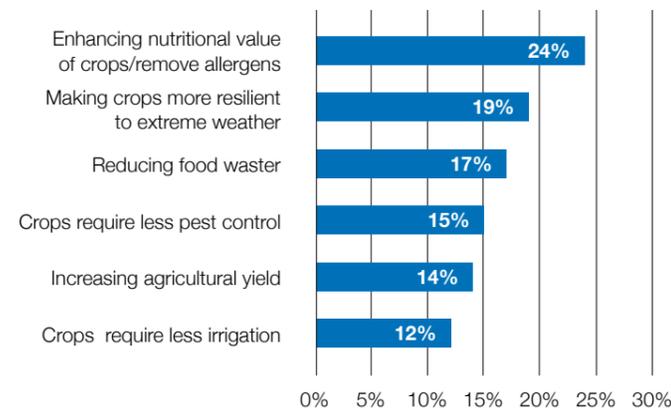


**Figure 2: Quality beats quantity as a benefit of new plant-breeding techniques**

Do you plan to apply new plant-breeding techniques in your farming practices over the next 5 years?



What benefit of new plant-breeding techniques is most important to you?



addressing the concerns consumers care about most: nutritional health, climate change, reducing food waste, and the need for more natural production techniques. Of the almost two-thirds of farmers (63%) who plan to implement new plant-breeding technologies over the next five years, 24% cite the opportunity to enhance the nutritional value of crops and remove allergens.

We are now a long way from the traditional stereotype of farmers seeking increased production above all else, argues Dr Howard-Yana Shapiro, Chief Agricultural Officer at Mars Incorporated. “Encouragingly, we have crossed the Rubicon: yield is no longer the sole criterion for success,” he says. “We now can use plant-breeding technologies to boost adaptability to climate change, enhance resistance to pests, and – importantly for the lives of millions – increase the nutrition of key crops.”

“We also need coordinated action to radically move the needle on food safety,” he adds. “Quite simply – if it’s not safe, it’s not food.”

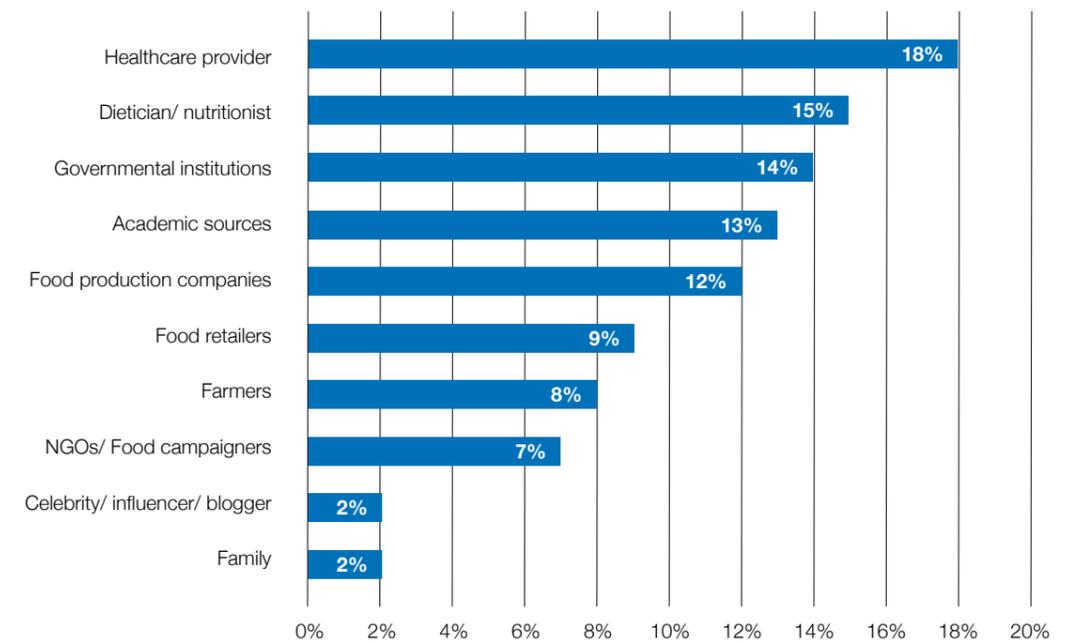
Farmers have within their grasp an opportunity to shift the debate – and their practices – in this direction. While farmers themselves believe that consumers seeking information about sustainably produced food are most likely to trust advice from authorities such as healthcare providers and the government, consumers actually say something very different: one-fifth (20%) say it is farmers they trust the most – well ahead of any other group.

However, that trust is precious and must not be jeopardized, warns Ruth Thomas of the Global Agribusiness Alliance and Soft commodities Forum, WBCSD. “Leading companies understand what it takes to establish trust: accepting responsibility for legacy issues, as well as demonstrating a commitment to transparency,” she says.

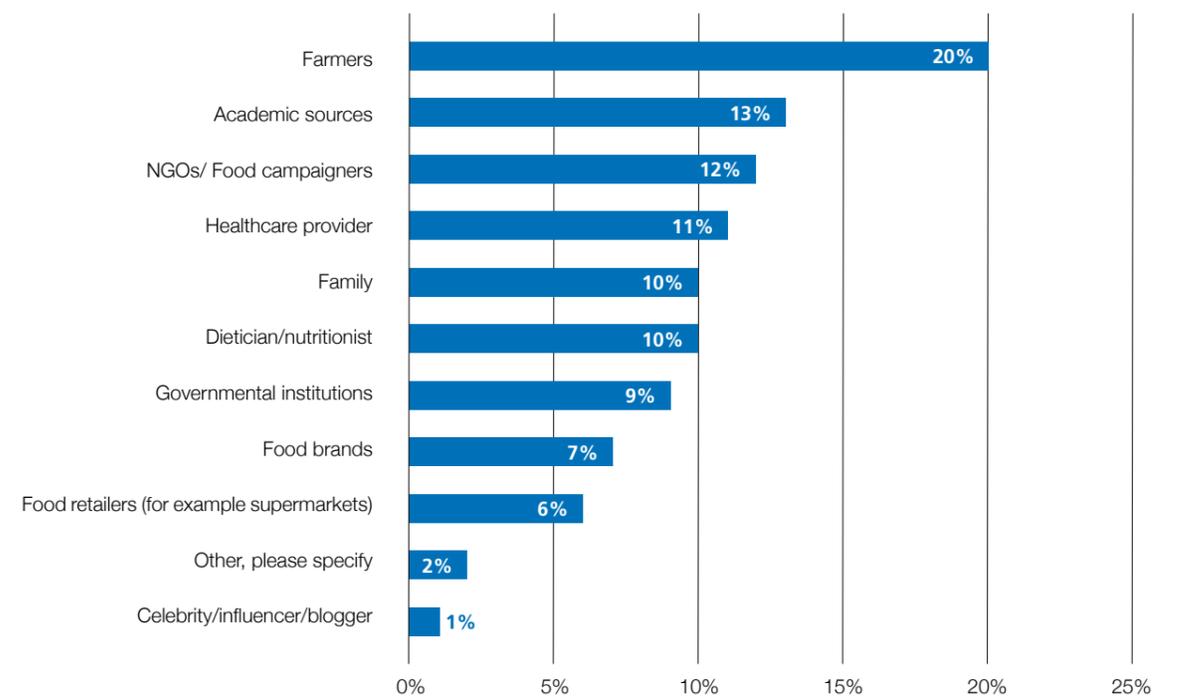
Farmers will need to tread carefully, building the argument for innovation on the basis of what is best for humanity and the environment. The prize on offer is better long-term health of both society and the farming industry itself.

**Figure 3: Farmers have won consumers' trust**

Sources farmers believe consumers trust more when seeking information about sustainably produced food



**Sources consumers trust most when seeking information about sustainably produced food**





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- **Isabelle Grosmaître**, *Alimentation Initiative Catalyst, Danone*
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- **Eric Soubeiran**, *Vice-President Nature & Water Cycle, Danone*
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