

EXECUTIVE SUMMARY

# AGRIFOOD AND HEALTH: **Key Developments in 2019 and Outlook for 2020**

Lead Analysts: **Sara Olson, Ph.D.**  
Research Director

Contributors: **The Agrifood and Health Team**



# We analyze these key 2019 developments and 2020 predictions in the context of four themes across agrifood and health

## **The food company of 2050**

Major food companies face intense competition from smaller, more agile brands. With personalization in focus, there are fewer benefits to being big; innovating to address changing consumer demands will be key.

## **Consumers' relationships with health are evolving toward prevention and personalization**

Prevention and personalization are reshaping consumers' choices, empowering them to make lifestyle decisions that explicitly influence health outcomes. This will drive massive market potential.

## **Doing more with less across agrifood**

Companies whose businesses rely on consumption for topline growth – from foods to agrichemicals – face pressure to diversify. Meanwhile, producers reduce resource use, driven by concerns of affordability and scarcity.

## **Transformative innovations disrupt the entire ecosystem**

Major transformative innovations underlie the products and services that drive consumer markets; innovations in bioinformatics, POU sensing, and ingredient informatics are disrupting the space at the moment.





# Review of several key developments in 2019

In 2019, personalization came into sharp relief across the ecosystem, underpinning most innovation decisions. Tech developments and business model innovations were similarly in focus.



## THE FOOD COMPANY OF 2050

# The year of the plant-based burger

### KEY DEVELOPMENT

Impossible Foods, Beyond Meat, Tyson, Nestlé, Maple Foods, and others released or reformulated plant-based burgers in 2019, while Burger King and others added meat alternatives to menus. Products range from conventional soy-based patties to second-gen plant proteins like pea, supplemented with fermentation-derived flavor and color additives to mimic beef.

### LUX TAKE

Environmental concerns and massive marketing budgets are pushing consumers toward plant-based options now, though plant-based burgers have been widely available for decades. Health and flavor trade-offs remain. Finding routes to beeflike flavor without introducing significant sodium content will be critical to taking meaningful market share from beef products.

### KEY PLAYERS



### FURTHER READING

[The future of meat is... protein](#)



DOING MORE WITH LESS

# Biofertilizers offer reduced nitrogen dependence

## KEY DEVELOPMENT

Where biofertilizers were once isolated to leguminous crop varieties, mining diverse soil and plant-associated microbes has provided demand-driven nitrogen fixation to broadacre crops like corn and wheat. Azotic and Pivot Bio each released plant-symbiotic nitrogen fixing seed treatments, claiming fertilizer reductions of up to 25%.

### LUX TAKE

Biofertilizers improve nutrient use efficiency and contribute to agricultural sustainability especially during stress. Consumers demand responsibly produced food, and these products rely on such claims to gain market penetration. Yet, modes of action (MOAs) remain poorly described. Clients, focus on developers with well-characterized MOAs in your regions of interest.

## KEY PLAYERS



PIVOT BIO



## FURTHER READING

[Demystifying the Growing Biofertilizer Movement](#)



## CONSUMERIZATION OF HEALTHCARE

# Femtech holds opportunities

### KEY DEVELOPMENT

Key demographic changes in venture capital firms and their focus areas have led to increased funding in the femtech sector, with the most funding for the sector ever coming in the past two years. However, clients should be aware that regardless of venture capital involvement, femtech has a total potential consumer base of 3.9 billion people.

### LUX TAKE

Regardless of short-term shifts in VC funding, clients should be looking to femtech for opportunities to grow and support current businesses. Femtech targets fully half of the population and often does not require radically novel technology. Clients should consider repurposing existing tech into solutions that meet woefully underserved healthcare needs to capitalize on this opportunity.

### KEY PLAYERS



### FURTHER READING

[The next femtech opportunities to target today](#)





## TRANSFORMATIVE INNOVATIONS

# Bioinformatics comes out of the shadows

### KEY DEVELOPMENT

The potential of bioinformatics to impact the agrifood and health ecosystem is only dwarfed by the amount of biological data continuously produced and available. Benson Hill Biosystems and Inari are impacting crops, national agencies routinely apply next-generation sequencing, and big agriculture and pharma are joining forces for next-generation products.

### LUX TAKE

Bioinformatics, the digital toolbox for omics technologies, emerged from R&D programs as a sales point and indication of adaptability and opportunity rather than an obscure discipline. It reduces product development costs and target identification time when single omics data sources are needed but still requires advancements in order to exploit the diversity of biological data available.

### KEY PLAYERS



### FURTHER READING

[Bioinformatics: The Digital Toolbox for the Biological Data Revolution](#)







# Sample Predictions for 2020

Based on all of our available data on agrifood and health innovation, we make some key predictions for 2020 and what impact they will have if proven correct.





## Digitalization comes to food

Harini Venkataraman  
Analyst

“

In 2020, look for more adoption of digital technologies in the food industry for new product development, end-to-end transparency, and food e-commerce applications. Blockchain technology will continue to make headlines in agrifood, but the demonstration of value added toward a specific business impact will be a key factor for its successful adoption.

As digital becomes a crucial part of food innovation in 2020 and beyond, clients should partner with digital tool developers keeping both near- and long-term business goals in mind.

”



## Second-gen plant proteins ramp up

Laura Krishfield  
Research Associate

“

The momentum behind plant-based foods will persist as developers expand their product portfolios. This will pressure the supply for first-generation plant sources like soy and drive the growth of second-gen crops like pea, canola, and chickpea. Developers will also experiment with other novel protein sources, including insects, single-cell proteins, and cell-based meats.

We will see second-gen plant proteins achieve cost parity with soy as well as the first hybrid products – containing both plant- and cell-based protein sources.

”





## Ag business models will evolve further

Joshua Haslun  
Senior Analyst

“

The agrichemical industry has remained stable and unchanged in its volume-based business model strategies, but those days are over as e-commerce and digital agriculture blend to reduce customer pain points with novel and low-overhead business models.

While existing input distribution frameworks and farmers' slower adoption of digital technologies make rapid global expansion difficult, the changes we are observing are happening faster now than ever recorded in modern history.

”



## Water scarcity will drive conservation

Mia Lu  
Research Associate

“

Nearly a quarter of humanity is already experiencing a shortage of water. The crisis will worsen with climate change and population growth, driving water prices further upward, posing increasing threats to individuals as well as agricultural and industrial value chains.

Rising awareness of water scarcity will push decision-makers to pay more attention to conservation and alternative supplies, stimulating multisector collaborations to accelerate the development and implementation of advanced water treatment and monitoring solutions.

”





## POCD 2.0 supports preventive medicine

Nardev Ramanathan  
Analyst

“

In 2020, expect to see more point-of-care diagnostics being developed to support healthy consumers, not just for those afflicted or suspected to be afflicted with disease.

The massive amounts of data generated daily from smartphones and wearables combined with the pervasive and integrated use of AI in understanding and personalizing recommendations will lead to more real-time and accurate feedback that continuously supports healthy lifestyles. Preventive, lifestyle-based interventions can keep healthcare costs manageable and maintain a more productive workforce.

”



## Consumer health platforms dominate

Danielle Bradnan  
Research Associate

“

The rise of platforms is going to be the key development in consumer health. In a crowded landscape of single-point solutions addressing healthcare concerns in a disparate and siloed fashion, it will become imperative to connect the data sets in platforms to paint a full picture of patient health.

The impact of a platform is the streamlining and unification of data to ensure patients are able to manage their health more effectively and communicate with physicians more efficiently – with a more tangible goal of improving the overall quality of care.

”





## Increasing sensor ubiquity empowers consumers

Sara Olson  
Director, Research

“

Cheaper, smaller, faster sensor options will continue to infiltrate consumer product markets beyond health tracking to include food safety and quality.

As consumers continue to experience data availability from sensors, more and more consumption and lifestyle decisions will be made based on these data. This increasing sensor ubiquity will empower consumers to take even more factors into account in their purchasing decisions.

”







# Innovate Smarter & Grow Faster With Lux

**Contact us:**

[www.luxresearchinc.com](http://www.luxresearchinc.com) [press@luxresearchinc.com](mailto:press@luxresearchinc.com)



[@LuxResearch](https://twitter.com/LuxResearch)



[@LuxResearch](https://www.facebook.com/LuxResearch)



[Lux Research, Inc.](https://www.linkedin.com/company/LuxResearchInc)

**Blog:**

[Lux Blog](#)

**Free Webinars:**

[Lux Webinars](#)

**YouTube:**

[Lux Research](#)