

FoodTech White Paper: 2020 Trends in Venture Capital Financings

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As technological disruption and global events increasingly upend legacy industries, food might seem like the last safe haven from change. Holidays revolve around our favorite foods—turkey at Thanksgiving, apple pie on the Fourth of July. A favorite dish can conjure cherished memories of family gatherings or childhood. Food can be a touchpoint to the past and a constant theme throughout our lives.

As with many things, though, 2020 shattered our assumptions about food. When the COVID-19 pandemic disrupted traditional supply chains and caused health crises in meatpacking plants, plant-based meat went from novelty to reality. Rapidly introduced in fast-food chains and grocery aisles, products made by Beyond Meat and Impossible Foods led the charge in introducing the public to plant-based burgers that look, taste, and smell like traditional animal-derived meat. A host of start-ups and legacy food companies joined the fray, offering consumers healthier and more environmentally friendly meat alternatives at price points that are nearing parity with traditional meat-based products.

While plant-based food grabbed headlines during 2020, more fundamental innovations entered the picture as well. Cellular cultivation, which produces foods from animal cell cultures, aims to offer consumers products that are molecularly identical to the animal-derived products that are central fixtures in many diets globally. Once thought of as science fiction and derided as creating a “\$325,000 burger,” in reference to the funding for the first cell-based burger produced in 2013, cellular cultivation took a major leap forward in 2020 when the Singapore Food Agency became the first regulatory agency to approve cell-based chicken made by Eat Just, a Bay Area FoodTech company. With more regulatory approvals expected in the near term, 2020 positioned cellular cultivation for an introduction to consumers.

Beyond plant-based and cell-culture meat replacements, more changes are on the horizon. Fermentation, a process in which proteins are produced by genetically modified microbes that is similar to those used to brew beer, is one of the most promising developments. Many companies in the FoodTech space are using fermentation to create proteins that are molecularly identical to and/or replacements for traditional animal-based proteins. These companies are both producing new foods and creating the ingredients that will be used by other consumer-facing FoodTech businesses in the future. Other companies are creating additional ingredients and the processes for further innovations and commercial scale-up of FoodTech companies. These companies will be vital to the success of the next wave of FoodTech companies.

All of these changes were both validated and spurred forward by an unprecedented wave of private financing in 2020. PitchBook, a private capital market data provider, reported that FoodTech companies raised \$18.1 billion in venture capital financings over the course of the year.¹ This total includes a wide variety of food-oriented companies that experienced success in 2020, ranging from food-ordering platforms to ghost kitchens. This white paper focuses on trends in PitchBook's data for food and beverage producers and FoodTech-oriented biotechnology companies.

Financing Flowed to FoodTech

The \$18.1 billion in funding raised by all FoodTech companies in 2020 is impressive by any measure, underscoring the success in food innovation despite—and in some cases, because of—the global pandemic. Still, the moderate 9 percent year-over-year (YOY) increase in general FoodTech funding in 2020 points to the countervailing fortunes of different subsectors of FoodTech. While the fortunes of food-delivery companies rose during the pandemic, supply chains were disrupted and restaurant-oriented tech may have suffered.

On the other hand, the core subsectors reviewed for this white paper—producers of food and beverages and food-oriented biotechnology companies creating ingredients and processes used by consumer-oriented food companies—experienced explosive growth in funding. In 2020, these companies raised \$3.6 billion, representing a 126 percent increase from 2019 levels. This massive increase in funding was driven by a handful of market leaders, including \$700 million raised by Impossible Foods alone. Still, median deal size experienced 136 percent YOY growth and increased to \$1.7 million globally. Funding increases were equally significant within the U.S., where funding totaled \$2.8 billion and median deal size increased 184 percent YOY to \$2.8 million.

As funding increased for FoodTech, the sources of funding shifted to reflect the sector's maturation and increased capital needs. Institutional investors led half of FoodTech financings and invested about 97 percent of the total funds in U.S. financings. Increased institutional investment reflects interest from food- and AgTech-focused investors, more traditional institutional investors that have recognized the market opportunity for FoodTech, and strategic investors affiliated with large legacy food companies. The remaining funding came from early-stage sources of capital, including grants, incubators and accelerators, family and friends, and angel investors. The shift toward institutional capital may continue as consumer acceptance of plant-based products increases and as cell-based meat moves closer to commercialization in the U.S.

Plant Power

Plant-based food and beverages are riding the crest of the FoodTech funding wave. Globally, companies making food and beverages raised \$1.9 billion in private financing in 2020, a 175

¹ Source: PitchBook Data, Inc.

percent increase over the prior year. While this total includes funds raised by companies producing more traditional food and beverages made from plants, such as snack foods, smoothies, beer, and wine, these companies only accounted for about 12 percent of the funds raised. The other 88 percent of funds were raised by companies developing novel products such as meat and dairy replacements. In the U.S., these companies collectively raised \$1.7 billion across 79 deals. Impossible Foods' \$700 million in funding accounts for about 42 percent of this total, and LIVEKINDLY Collective, a global plant-based food company, raised an additional \$335 million. Median deal size for these companies reached \$4.6 million in the U.S.—which is 1.6 times larger than the median for U.S.-based FoodTech financings generally. This difference may both reflect and fuel increasing market adoption of plant-based foods. In contrast, cell-based foods have not received regulatory approval outside Singapore, and other protein innovations have received less attention.

Although many plant-based companies are developing a range of products, plant-based beverage companies have capitalized on a gradual trend toward the replacement of animal dairy products with plant-based alternatives. Consumer acceptance of soy, nut, and grain-based beverages has grown steadily while American milk sales decreased over the past decade. 2020 witnessed the rise of oat milk as the latest plant-based beverage of choice. Oatly, a Swedish maker of oat milk products, announced that it had raised \$200 million in funding last summer and is reportedly weighing an initial public offering that may value the company as high as \$10 billion. Companies producing non-traditional plant-based beverages only accounted for a small sliver of 2020 FoodTech financings in the U.S., but the median deal size for these companies was \$8.5 million.² The smaller number of deals in this space may reflect the market dominance of incumbents like Danone and Blue Diamond, while the larger median deal size may be the result of widespread consumer acceptance of these products.

Cell-Based Meat Sets Sail

The Singapore Food Agency's approval of cell-based chicken for consumer consumption was a capstone on an exciting year for cell-based food products. After raising approximately \$33.4 million and \$39.0 million in 2018 and 2019, respectively, cell-based food companies raised \$335.5 million in 2020, representing a 760 percent increase. Approximately 55 percent of this total came from the \$186 million Series B financing of Memphis Meats, a market leader in the race to develop cell-based meat. Memphis Meats reported that it planned to use its financing to build a pilot production facility and work toward commercialization of its products. Although the number of financings for cell-based meat companies is dwarfed by the number of those raised by plant-based companies—only 25 deals were reported to PitchBook by cell-based food makers—median deal size reached \$2.6 million in 2020, compared to \$840,000 in 2019. A majority of these deals were funded via grants, accelerators, incubators, and seed rounds, reflecting the relatively early stage of cellular cultivation's development. As more companies clear initial R&D hurdles, they will require significant amounts of capital to build production capacity and commercialize their products. Most cellular cultivation companies have not

² Does not include Oatly's financing, which is not included in the PitchBook data set.

reached this inflection point yet, but the trends in 2020 pointed in a promising direction.

Funding Fermentation

While plant-based foods have achieved consumer acceptance and cell-based foods have captured imaginations, innovative companies are working to create new food products in other ways as well. One approach increasingly embraced by FoodTech companies is fermentation. Many companies are selecting fungi for their fermentation processes due to their high protein and fiber content, relatively low costs, and efficient production timelines. While replacing meat by growing mushrooms in a tank may seem strange at first, the proteins created through fermentation can in some cases be molecularly identical to animal proteins.

Fermentation FoodTech companies are generally at a stage of development similar to those focused on cellular cultivation. With \$591.2 million raised in 2020, financing for fermentation companies increased by 98 percent over 2019, although the increase was attributable to the \$300 million invested in the Series C financing of Perfect Day, which is developing animal-free dairy proteins through fermentation. The median fundraising for fermentation companies in 2020 was \$3.8 million, down from \$4.4 million in 2019.

FoodBio for the Future

A cadre of biotechnology companies are working on innovations that address food waste, production, and sustainability. Supply chain disruptions caused by the pandemic spurred increased interest in addressing food waste issues. Apeel Sciences, maker of an edible coating to preserve the shelf life of fruits and vegetables, led this pack, raising over \$280 million in 2020. Other companies are producing proteins through means other than fermentation or are developing technologies to be used in cell-based meat products. Unlike makers of plant- or cell-based meats, these companies are enterprise-oriented, and their products will be incorporated into the supply chains of consumer-focused FoodTech companies. Protein-oriented companies raised \$30.7 million in 2020, consistent with the prior year. Additional investments were made in companies investigating sugars, carbohydrates, and food colorants. These companies will provide the foundation for future FoodTech innovations.

Conclusion

With unprecedented amounts of funds raised in 2020 and highly anticipated regulatory approvals and initial public offerings on the horizon, FoodTech companies are positioned for continued growth in 2021 across all subsectors. The financing trends of 2020 indicate that plant-based food producers will continue to lead the charge, but cellular cultivation, fermentation, and other businesses will not be far behind.