2020 was a year of firsts for the cultivated meat industry—capped off with a head of government consuming cultivated meat in Israel and the first commercial sale of cultivated meat in Singapore. The regulatory approval of a cultivated chicken product in Singapore is a good sign for regulatory green lights in other countries, and the sector made headway in advancing the viability of industrial-scale production.

**Commercial landscape**

*Companies dedicated to producing cultivated meat*

- **53** existing companies
- **23** new companies in 2020
- **43%** YOY increase

*First commercial launch.* Eat Just launched the commercial sale of its cultivated chicken bites at restaurant 1880 in Singapore. 1880 sold the product to consumers for the first time via a series of invitation-only dinners in December before adding it to the menu in early 2021.

*Spotlight: seafood.* 3 of 8 major 2020 cultivated meat tasting events were for seafood products—fish fillet, sushi-grade salmon, and lobster.

In 2020, companies advanced cultivated meat technology and pursued the production of a wide variety of meat types, including:

- Beef
- Chicken
- Pork
- Shrimp
- Duck
- White fish
- Sturgeon
- Salmon
- Tuna
- Lamb
- Foie gras
- Fish maw
- Horse
- Kangaroo
- Lobster

**Leading edge of cultivated meat production**

Companies at the leading edge of the industry are now manufacturing cultivated meat at pilot scale, a crucial early step to assess the viability of industrial-scale production.

**Proving the concept**

<table>
<thead>
<tr>
<th>Precommercial</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conceptualization</strong></td>
<td><strong>Demonstration Scale</strong></td>
</tr>
<tr>
<td>Recognizing the possibility of generating meat from tissue culture</td>
<td>Generating market samples and key process engineering understanding</td>
</tr>
<tr>
<td><strong>Lab Proof of Concept</strong></td>
<td><strong>Industrial Scale</strong></td>
</tr>
<tr>
<td>Developing bench-scale prototypes of cultivated meat</td>
<td>Manufacturing cultivated meat products at an industrial scale</td>
</tr>
</tbody>
</table>

**Time:** Through 2013
- **Scale:** N/A

**2013–2019**
- **Scale:** N/A

**2019–2022**
- **Scale:** Hundreds of metric tons

**2022–?**
- **Scale:** Thousands of metric tons

**?**
- **Scale:** Millions of metric tons
Investments

Investment in cultivated meat companies topped $350 million in 2020, nearly double the previous cumulative investment in the industry. 2020 also saw the industry’s first Series B funding rounds.

<table>
<thead>
<tr>
<th>Category</th>
<th>2020</th>
<th>2016-2020</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total invested capital</td>
<td>$366M</td>
<td>$505M</td>
<td>2020 invested capital grew 487% from 2019.</td>
</tr>
<tr>
<td>Invested capital deal count</td>
<td>49</td>
<td>125</td>
<td>2020's largest investment was $186M (Memphis Meats).</td>
</tr>
<tr>
<td>Unique investors</td>
<td>94</td>
<td>245</td>
<td>The number of unique investors grew 62% from 2019.</td>
</tr>
<tr>
<td>Series B funding rounds</td>
<td>2</td>
<td>2</td>
<td>Included Memphis Meats and Mosa Meat.</td>
</tr>
<tr>
<td>Series A funding rounds</td>
<td>6</td>
<td>12</td>
<td>Included Blue Nalu, Shiok Meats, IntegriCulture, and Biomilq.</td>
</tr>
</tbody>
</table>

Science and technology

Several techno-economic assessments revealed the technical and financial feasibility of scaling up cultivated meat production. Recombinant proteins and growth factors are dominant cost drivers of production; as raw-material costs decrease, bioreactors and facilities will represent a lion’s share of costs. Challenges remain in chemical and biological engineering as well as in securing data for cellular metabolism metrics. Studies also revealed that fundamental technological breakthroughs are not necessary to eventually achieve economically viable production. Learn about more science and technology breakthroughs from GFI’s research grant program.

Government and regulation

Regulatory approval. The Singapore Food Agency (SFA) became the first national regulator to green-light the sale of a cultivated meat product. The approval of Eat Just’s cultivated chicken, for use as an ingredient in the company’s chicken bites, was the culmination of a regulatory process developed over more than two years.

Head of state tasting. GFI Israel and Aleph Farms hosted Israeli prime minister Benjamin Netanyahu for a tasting of Aleph Farms’ cultivated steak. Netanyahu directed the appointment of a body to serve the industry.

Public funding. Both the U.S. and the E.U. provided their first substantial public R&D funding in the sector.

Download the full report.

About GFI

The Good Food Institute is a 501(c)3 nonprofit organization developing the roadmap for a sustainable, secure, and just protein supply. We identify the most effective solutions, mobilize resources and talent, and empower partners across the food system to make alternative proteins accessible, affordable, and delicious.