

## United States puts Cell-Cultured Meat on the Front Burner, While Italy puts it on the Back: Implications for Production and Trade

Jessica Pugliese and Patrick Crotty, Office of Industry and Competitiveness Analysis

*Last year the USITC EBOT series provided an overview of the cell-cultured meat and poultry in the briefing “[What is Cell-Cultured Meat? How is it Made?](#)” and synthetic biology in “[A Brief Introduction to Synthetic Biology](#).”<sup>1</sup> Since then there have been a few notable developments: the U.S. regulators have taken actions to approve products for retail sale, while Italian legislators proposed a bill banning all cell-cultured products. This executive briefing reviews the number of companies and level of investment worldwide, reviews U.S. regulatory and Italian legislative events, and discusses implications for the industry in terms of production (in terms of planned expansions) and trade.*

### An Update on the State of Cell-Cultured Meat Industry in 2023

As of 2022, there were 156 publicly announced cell-cultured meat companies and 18 operational facilities worldwide.<sup>2</sup> Between 2010 and 2022, the industry has attracted more than \$14 billion in private capital and nearly 700 unique investors by the end of 2022, including meat company Cargill and Bill Gates.<sup>3</sup> Cultured meat also attracted high-profile partnerships with celebrity chefs, like the partnership between Upside Foods and Dominique Crenn at Bar Crenn, in San Francisco, California.<sup>4</sup>

Despite investor enthusiasm for cultured meat, high production costs and barriers to entry continue to slow mass production and consumer adoption. Globally, cell-cultured meat and chicken sales have been limited, and these sales are often at a loss so companies can achieve prices low enough to attract consumers. For example, cell-cultured meat costs an estimated \$63 per kilogram to produce, but protein company Eat Just, Inc. (parent company of Good Meat) sells its cell-cultured chicken sandwich at a restaurant in Singapore for \$14. Its CEO says that the company “{loses} money every time someone enjoys {its} cultivated chicken.”<sup>5</sup> To lower production prices, some cultured meat companies have turned to creating “hybrid” products that combine plant-based and cultured meat.<sup>6</sup> Other companies have turned to premium products that fetch higher prices, like Gourmey’s cultured foie gras.<sup>7</sup> Research and development funding from both the public and private sectors may reduce production costs, and investors hope for cost parity between conventional and cultured meat in the long run.<sup>8</sup>

### U.S. Regulatory Actions in 2023

The two U.S. regulatory agencies responsible for the safety of cell-cultured meat, the Food and Drug Administration (FDA) and the U.S. Department of Agriculture’s Food Safety Inspection Service (FSIS), recently took actions that greatly facilitate the cell-cultured meat and poultry industry’s ability to bring products to U.S. consumers. First, in November 2022, the FDA provided Upside Foods with a “no-questions” letter, which means the FDA had no further questions in regards to product safety. Good Meat received a similar letter in March 2023. Second, in June 2023, FSIS approved product labels for chicken for both Upside and Good Meat.<sup>9</sup> However,

<sup>1</sup> Cell-cultured meat and poultry is also called cell-cultivated meat and poultry; however, FSIS rulemaking on labeling requirements has yet to be finalized. Advanced Notice of Proposed Rulemaking in [86 FR 49491](#), September 3, 2021.

<sup>2</sup> GFI, [State of the Industry Report](#), 2022, 14.

<sup>3</sup> Torrella, “[FDA Approves Lab-Grown Chicken Meat from Upside Food](#),” November 17, 2022; GFI, [State of the Industry Report](#), 2022, 38; Congressional Research Service (CRS), [Cell-Cultivated Meat](#), September 19, 2023, 4.

<sup>4</sup> Associated Press, “[U.S. Approves Nation’s First ‘Lab-Grown’ Meat for Sale at Restaurants](#),” June 22, 2023.

<sup>5</sup> Garrison, Biermacher, and Brorsen, “[How Much Will Large-Scale Production of Cell-Cultured Meat Cost?](#),” December 2022; Reuters, “[Even after Green Light, Lab-Grown Meat yet to Take off in Singapore](#),” March 8, 2023.

<sup>6</sup> Many cultured meat companies are experimenting with plant-based scaffolding on which animal cells can proliferate. These innovations may reduce the costs and improve the texture of cultured meat. GFI, [State of the Industry Report](#), 2022, 65; Seah et al., “[Scaffolds for the Manufacture of Cultured Meat](#),” March 2022.

<sup>7</sup> Gourmey, “[Cultivated Meat Delights](#),” accessed November 6, 2023.

<sup>8</sup> Brennan et al., “[Cultivated Meat: Out of the Lab, into the Frying Pan](#),” June 2021, 8–10.

<sup>9</sup> FDA, [FDA Response CCC 000002](#), November 16, 2022; Upside Foods, [Approved for Sale](#), June 21, 2023; FDA, [FDA Response CCC 000001](#), March 20, 2023; Good Meat, [GOOD Meat Gets Full Approval](#), June 21, 2023.

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rulemaking on the labeling of cell-cultured products has not yet been finalized, so any prior approved labels may have to change according to finalized regulations.<sup>10</sup> In addition to granting these company approvals, in June 2023, FSIS announced two directives, one new and one updated, guiding food safety inspection of cell-cultured meat and updated its sampling procedures.<sup>11</sup>

### Italian Legislative Actions in 2023

Italy was on a different trajectory than the United States last year regarding cell-cultured meat. In March 2023, Italian Agriculture Minister Lollobrigida presented a bill to ban cell-cultured meat production and commercial sales in Italy, and it received approval by the Council of Ministers.<sup>12</sup> In November 2023, Italian parliament passed the bill. If signed into law by President Mattarella, production/sales of cell-cultured meat in Italy may be subject to penalties of 10,000 up to 150,000 euros.<sup>13</sup> Italy submitted the approved bill to the Technical Regulation Information System (TRIS) on December 1, 2023.<sup>14</sup> TRIS is an EU system that monitors potential barriers to trade within the EU block.<sup>15</sup>

### Implications for Production and Trade

U.S. regulatory approval appears to have had a positive impact on the planned expansion of U.S. production of cell-cultured meat and poultry. Upside Foods announced construction of a second production facility named Rubicon, north of Chicago in Glenview, Illinois that will have the capacity to produce 30 million lbs of finished product per year.<sup>16</sup> The company's first pilot location named EPIC, is in Emeryville, California and it can produce 50,000 lbs of finished product per year, and eventually 400,000 lbs per year.<sup>17</sup> Good Meat also announced a planned expansion beyond its Alameda, California headquarters to a yet-to-be-disclosed site that will be able to produce 30 million lbs of finished product per year.<sup>18</sup> However, Good Meat is facing legal challenges from one of its suppliers, which could stall its growth.<sup>19</sup> For comparison, the United States produced 107 billion lbs of red meat and poultry in 2022.<sup>20</sup>

By contrast, some parties view the Italian legislative actions as a possible block to food innovation and trade. The Italian Associazione Coscioni claims that the ban of cell-cultured meat is a potential violation of the Italian constitution, in particular article 9, which promotes scientific innovation.<sup>21</sup> There is currently one cell-cultured meat enterprise in Italy, Bruno Cell, partnered with the University Trento and CiBio Laboratories. The founder of this company fears that Italy's anti-cultured meat and poultry bill will discourage investment.<sup>22</sup>

It is still unclear how much U.S. cell-cultured meat will be traded internationally. International food standards, such as the UN Food and Agricultural Organization's Codex Alimentarius, do not currently exist for these products, but if developed they could facilitate trade and prevent non-tariff barriers to trade in cell-cultured products in the future.

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<sup>10</sup> [86 FR 49491](#), September 3, 2021, at IV. Label Evaluation Prior to Rulemaking.

<sup>11</sup> FSIS Directives [7800.1](#), [5730.1](#) and [Notice 31-23](#).

<sup>12</sup> Governo Italiano-Ministero dell'agricoltura, [Comunicati Stampa](#), March 28, 2023.

<sup>13</sup> Amante, ["Italy's Parliament Approves Ban on Lab-Grown Food Amid Tensions"](#), November 16, 2023.

<sup>14</sup> Latest [draft of the law](#). EU Commission TRIS, [Notification Detail: Provisions on the Prohibition](#), December 1, 2023.

<sup>15</sup> De Lorenzo, ["Did Italy Really Withdraw Its Intention"](#), October 20, 2023.

<sup>16</sup> Upside Foods, ["Reshaping the Future"](#), September 14, 2023.

<sup>17</sup> Food Dive, ["Upside Foods Opens Plant"](#), November 4, 2021.

<sup>18</sup> Good Meat, ["Good Meat Partners with ABEC"](#), May 5, 2022.

<sup>19</sup> Wired, ["Insiders Say Eat Just is In Big Financial Trouble"](#), November 16, 2023.

<sup>20</sup> USDA-ERS, [Livestock, Dairy, and Poultry Outlook: October2023](#), October 18, 2023, 29.

<sup>21</sup> Italian Republic, [Constitution of Italy \(English translation\)](#), December 22, 1947 updated 2007, 6.

<sup>22</sup> De Lorenzo, ["Did Italy Really Withdraw Its Intention"](#), October 20, 2023; Bruno Cell, ["What is Cultured Meat"](#), accessed November 8, 2023.