



Alternative Proteins

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BULLETIN

FOOD &
NUTRITION

INDUSTRY
INSIDER



FutureBridge


WHAT'S INSIDE!

SPOTLIGHT

The month of July saw plentitude developments in the **Alternative Protein trend**


- Oats is being utilized as the main ingredient in **plant-based dairy** products to ensure a **creamy, frothy, and sweet product** that **mimics milk**.
- The **cellular meat industry** is utilizing its **recent bout of funding** to address **challenges** such as **high cost** and **scaffolding** and hasten **product launches**.
- The **alternative protein industry** is experiencing high activity the **3D printing, microbial technology** and **ingredient production** to benefit from the focus on alternative proteins and **mimic the texture** and **nutritional profile** of animal protein.

01




Plant-based dairy products segment is highly active with players utilizing **oats** due to its functionalities such as **sweetness** and **creamy texture**

02



Cellular meat and seafood products is highly active with **startups** focused on **addressing challenges** such as **cost reduction** and **scaffolding**

03



The **alternative protein segment** is highly active with players utilizing **3D bioprinting, microbial technology** and **launching ingredients** for the segment

#PlantBasedDairyProducts

#Oats

- The **plant-based dairy** products industry is **highly active** in **July 2020**.
- The ingredient in focus is oats with companies such as **Noops** and **nutpods** utilize the ingredient as a **main ingredient**.
- The **oats** provides **creaminess** and **frothability** to the **plant-based dairy** segment allowing its use in **plant-based milk, cheese, creamer, condensed milk, and drinkable yogurts**.
- The other ingredients that are increasingly utilized in the segment include **almond, peanut, sunflower, cauliflower, pea, and chickpea** ingredients.
- Companies are diversifying their ingredients to replicate the **animal protein texture**.
- The **patent** published in **July 2020** allows **better solubilizing** of **plant-based proteins** such as **pea, oats, and soy** by utilizing **enzymatic conversion**.

LEGEND



Oats

Plant-based dairy products segment is highly active with players utilizing oats due to its functionalities such as sweetness and creamy texture



Protein: Oats

PDCAAS: 0.76

Functionalities: Neutral taste, natural sweetness, frothability, creamy texture

Challenges: Price fluctuations due to crop production

Patent related to the oats segment published in July 2020

Patent: [EP3322305B1](#)

Title: Use of peptidylarginine deiminase to solubilize proteins, optionally further to reduce their foaming tendency

Assignee: DSM IP Assets BV

Abstract: The patent utilizes **peptidylarginine deiminase** to **solubilize** proteins from pea, soy, oats, etc. The enzymatic treatment allows **30% of arginine to be converted to citrulline** and **increase solubility** of protein at **neutral pH**. The treatment also resulted in **lowered foaming capacity**, which is advantageous for plant-based milk products.

Other plant-based dairy ingredients developments

Chobani

Chobani **launched** plant-based products – **Chobani Probiotic** and **Chobani Complete**. The products contain **whole grain oats** and **fruit juice**. The Chobani complete is **lactose-free**.

Sproud™

Pea-protein milk producer Sproud **announced** expansion of distribution in the **US**. The Sprouts Farmers Market will carry the product in **350 locations across the US**.



Pip & Nut **received** funding from HSBC UK. The funding will be utilized to expand their business, which include **peanut and almond butter**.

Upfield

Upfield's brand Flora **launched** **sunflower seed-based butter** range - Flora Plant in the UK. The product contains sunflower seeds, rapeseed, and palm oil.

INNOVOPRO

Migros and Innovopro **launched** **chickpea-based yogurt** alternative. The product utilizes **Innovopro's CP Pro 70 chickpea protein**.

Investment



Noops **raised** **USD 2 Mn** in a pre-seed round for launching **oatmilk pudding** in the US. The ingredients of the pudding include **oat milk, date paste, and sunflower seed protein**.



Grounded Foods **received** **USD 1.74 Mn** for its **cauliflower-based cheese**, which also contains hemp and oats. The dairy-free cheese is produced in **camembert, gruyere, and feta**.



Startup **nutpods** **launched** **oat-based creamer** in combidome packaging. The nut-based creamers have a **neutral taste** and **frothability**.



Nestlé **launched** a vegan version of its **Carnation condensed milk**, which is made from **oat** and **rice flour**. It will debut in three major UK retailers in September, launching first in **Occado**



Wide Open Agriculture **announced** plans of launching **oat-based milk** by the end of **2020** in Australia. The oat-milk has **high frothing capacity** and **creamy texture**, which will increase its use in coffees, cereals, baking, and smoothies.



Danone **launched** **Actimel** - plant-based yoghurt drink range. The product utilizes a blend of **roasted almonds, oats, Lactobacillus casei**, vitamin D, and vitamin B6.



Elmhurst 1925 **expanded** the **retail distribution** of its **plant-based milk range** in the US. The products include Unsweetened Milked **Almonds**, Unsweetened Milked **Oats**, and Unsweetened Milked **Cashews**.

Product Launches

Expansion



Source: [Mosa Meat website](#)

Cellular meat and seafood products is highly active with startups focused on addressing challenges such as cost reduction and scaffolding

#CellularMeat #CellularSeafood

- The **cellular meat** and **seafood** industry is highly **active** with majority players being startups.
- The industry is actively looking to **reduce production cost** due to use of **animal-based cell-culture media** eg. Fetal bovine serum albumin.
- **Mosa Meat** and **CultNetSystem** have **removed the animal serum media requirement** and **effectively reduced cost**.
- Companies such as **Cass Materials** are developing **edible** and **tasteless scaffolds** for the cellular meat industry that will allow **cell-based meat cuts to be marketed**.

LEGEND Partnership

	<p>IntegriCulture partners with Shiok Meats to scale-up cellular shrimp production 07 July 2020, Tuesday</p> <ul style="list-style-type: none"> • IntegriCulture partnered with Shiok Meat to shrimp cell cultures. IntegriCulture will provide its CultNetSystem, which does not require animal serum and lowers cost of production. • CultNetSystem allows restaurants to farmers to grow their own animal tissue.
	<p>Startup Cass Materials develops edible scaffolding material for cellular meat 20 July 2020, Monday</p> <ul style="list-style-type: none"> • Cass Materials developed a fermentation-based edible scaffolding material - Bacterial NanoCellulose (BNC), for use in cellular meat. The material is a nanocellulose fiber matrix is produced during fermentation of kombucha or coconut jelly. • The material is tasteless and is a dietary fiber thereby introducing fiber in the final product.
	<p>Higher Steaks produces cell-based bacon products 21 July 2020, Tuesday</p> <ul style="list-style-type: none"> • Startup Higher Steaks produced cell-based bacon strips and pork belly. • The products also contain plant-base, fats, and starches for binding the product.
	<p>Cell-based meat startup Mosa Meat announces 80X reduction in medium cost 22 July 2020, Wednesday</p> <ul style="list-style-type: none"> • Cell-based meat startup Mosa Meat announced a greater than 80 times reduction in medium cost. The company's "Medium Optimisation" team improved the cell culture media by removing fetal bovine serum from its ingredients. • The company is focused on making the media animal-component free, which will ultimately lower the price.
	<p>Cubiq Foods is cultivating Omega-3 fats for the alternative protein segment 22 July 2020, Wednesday</p> <ul style="list-style-type: none"> • Cubiq Foods is cultivating Smart Fat, which is omega-3-rich structured fats, oils and other fatty emulsions for use in the alternative protein segment. • The company hopes to replace coconut oil that is currently used in the industry and provide improved juiciness.
	<p>New Age Meats raises USD 2 Mn for cell-based pork 30 July 2020, Thursday</p> <ul style="list-style-type: none"> • New Age Meats raised USD 2 Mn for cell-based pork in a seed extension round. The round is led by venture capitalist TechU Ventures. • The company has indicated that the investment will be used to lower the cost of cell-based pork sausage and reduce the price point.



#3DPrinting #MicrobialProteins #Ingredients

- The **alternative meat industry** is exponentially growing with **3D printing technology** being utilized by established and startup players such as **KFC** and **SavorEat**. The technology allows **complex structuring of cellular and plant-based meat to mimic animal protein**.
- Startup such as **Geltor** is active in the **microbial protein segment** to produce **higher concentrations of bioactive ingredients** that are traditionally derived from animals e.g. **collagen**.
- **Established** players such as **DuPont**, **DSM**, and **Unilever** are actively providing **plant and algae-based ingredients** for the alternative protein segment to **profit** from the trend of **consuming plant-based meat and dairy**.

The alternative protein segment is highly active with players utilizing 3D bioprinting, microbial technology and launching ingredients for the segment

3D Printing

The 3D bioprinting segment in the food industry is accelerating as the technology allows texturizing similar to animal meat and reduces food wastage

- KFC has [collaborated](#) with a Russian 3D bioprinting laboratory to create chicken nuggets made by a bioprinter.
- 3D meat printing startup SavorEat [received](#) USD 3 Mn in funding to print fully cooked pieces of meat.
- Legendary Vish is [3D printing](#) vegan fish with FELIXprinters' BIOprinter.

Microbial Proteins

The microbial protein segment is receiving investment as the technology provides a method to increase the final product concentration of bioactive ingredients such as collagen and gelatin

- Startup Geltor [raised](#) USD 91.3 Mn series B funding to develop tailored **bioactive ingredients** to replace traditional **animal-based proteins**, including **collagen** and **gelatin**. Returning investors in this round include **Cultivian Sandbox**, **SOSV**, and **iSelect Fund**, along with the investment arms of ingredient technology companies **GELITA** and **Archer Daniels Midland**.

Alternative Protein Ingredients

Established players are actively providing plant and microalgae-based ingredients for the alternative protein segment

- DuPont [launched](#) brand - **Danisco Planit** for plant-based ingredient range such as **plant proteins, hydrocolloids, cultures, probiotics, fibers, food protection, antioxidants, natural extracts, emulsifiers, enzymes**, and tailor-made systems.
- DSM [partnered](#) with **Avril** to develop **plant-based protein** via their joint venture - **Olatein**. Olatein is involved in producing **canola proteins - CanolaPRO**, which will be marketed and sold by DSM.
- **Unilever** and biotech start-up **Algenuity** [announced](#) their **partnership** to utilize **microalgae** for Unilever's plant-based portfolio. Algenuity produces **Chlorella Colours palette**, which significantly **reduces the chlorophyll content of microalgae** while still allowing them to retain their natural nutrients.

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