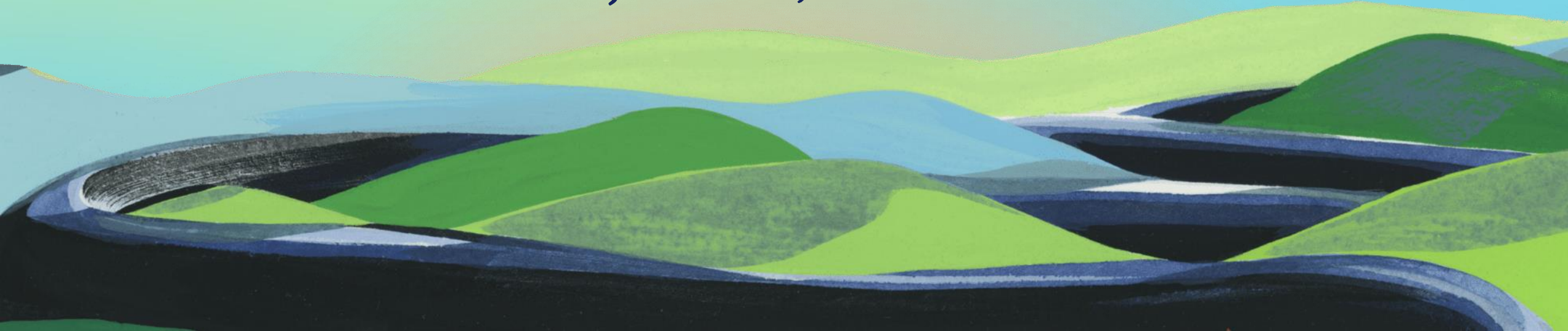


Perfect Day – Mubadala

# Strategy Discussion Part 2

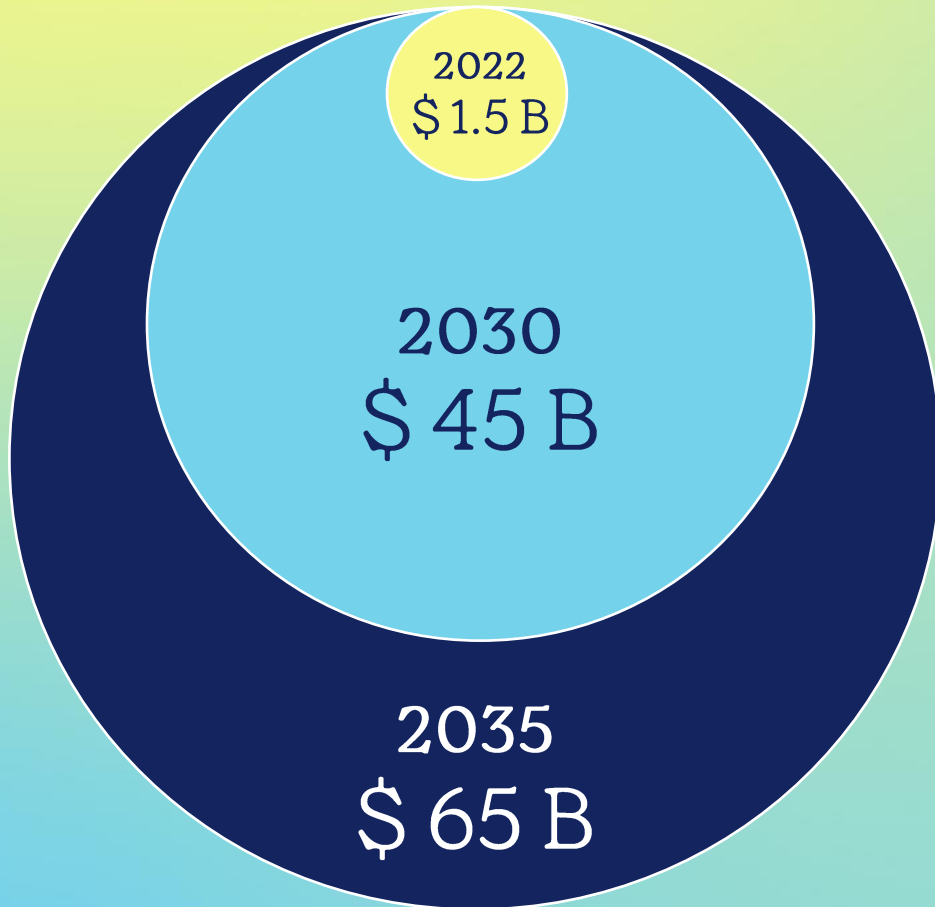
June 21, 2023



# Recap From Last Time

- Perfect Day is the world leader in precision fermentation – a sub-field of biotech creating ingredients with high purity at huge volumes
- Our first ingredient, LGB, is a nature-identical whey protein with the exact same nutrition and functionality as whey protein from milk
- Our protein brings significant consumer advantages (lactose-free, animal-free) and ESG benefits to corporates (99% less water, 97% less GHG, 60% less energy) and can be done anywhere, unlocking food security for sovereigns
- These advantages have led to significant sales and product launches with multinational Food & Beverage companies, who are eager to buy more protein as PD unlocks additional manufacturing scale
- Present customers include Nestle, Unilever, Starbucks, Mars, Bel Group, and many more in discussions

Precision fermentation is expected to grow to \$ 45B by 2030 and \$ 65B by 2035, per various reports from investment banks, nonprofits & think tanks



#### 2022 Scope of Precision Fermentation

- ✓ Flavors & Fragrances
- ✓ Specialty chemicals
- ✓ Pharmaceutical ingredients


#### 2030 Scope of Precision Fermentation

- ✓ Global dairy industry
- ✓ Global egg industry
- ✓ Enablement of cell-based meat
- ✓ Materials
- ✓ Cosmetics

Huge growth driven by emerging technology, opening precision fermentation to new, larger markets

# Multiple large food players are investing in both end products & ingredients; Perfect Day has relations with key players either as investors and customers

*Top global food & ag giants have invested in building this market, and Perfect Day is already working with top global customers*

Top players	Key Highlights	Key Activity In This Segment	Perfect Day Investors	Perfect Day Customers
	World's largest food company	Launched milk with Perfect Day	✓	✓
	\$50B global agricultural company	Invested in Series A	✓	
	World's largest agribusiness	Investing in PD's manufacturing	✓	
	One of the largest CPG companies	Breyer's + PD launch in August		✓
	World's largest dairy company	Precision fermentation JV w/ DSM		✓
	Major global enzyme leader	JV with Fonterra, partners with PD		✓
	Largest confectionery & pet co.	Launched chocolate bars with PD		✓
	Leading global coffee company	Multiple launches with PD		✓
	Largest e-commerce protein co.	Launched product with PD		✓
	One of world's biggest dairy cos.	Developing yoghurt with PD		✓
	World's biggest and loved brand	Launching with PD this summer		✓
<i>Plus: governments and sovereigns, e.g. Singapore and UAE</i>		Numerous investments in alt protein space	✓	

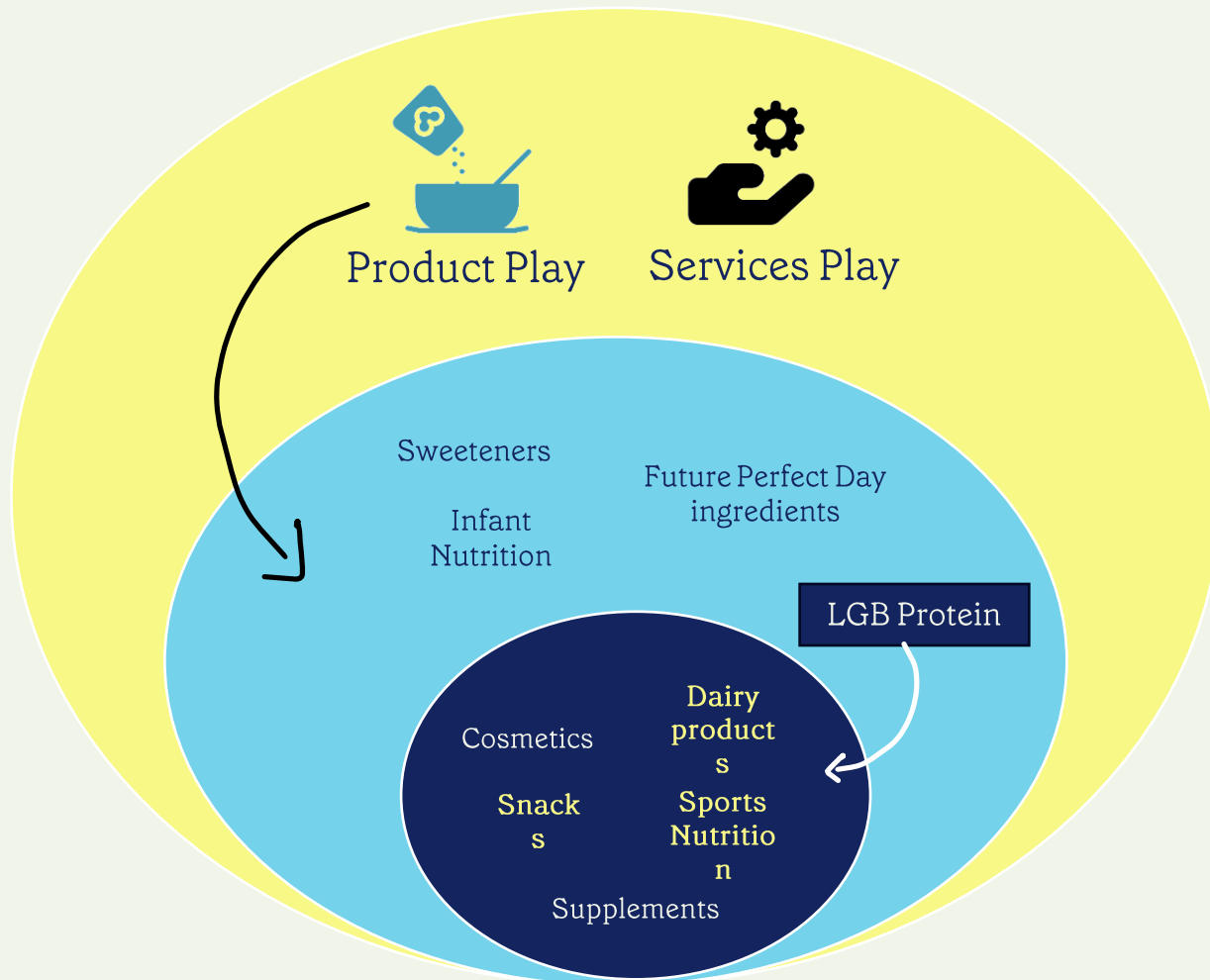
Each of these entities is committing to precision fermentation for supply security and to meet ESG targets.

# Perfect Day has fully patented all dairy verticals and can access other adjacent segments through biotech and bioprocess engineering platform

	Alternative Milk (e.g., oat, almond, soy)	Yoghurt	Cheeses	Ice Cream	Egg Protein	Collagen	Lactoferrin	Any Other Protein Ingredient
Product End Application	 <b>PERFECT DAY</b> Full patent protection	 <b>PERFECT DAY</b> Full patent protection	 <b>PERFECT DAY</b> Full patent protection	 <b>PERFECT DAY</b> Full patent protection	 <b>ONEGO</b> <sup>bio</sup>	 <b>GELTOR</b>	  	 
Strain Background IP	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>
Strain Engineering Platform	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>
Process Trade Secret	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>	<b>PERFECT DAY</b>

Perfect Day is a Biotech Platform that addresses all these verticals – and is poised to be the center of the new biotech revolution

# Perfect Day has built the world's leading precision fermentation business operating across levels of abstraction




Overall TopCo Biotech Platform enables our own ingredients that we sell to big food companies, as well as the IP-based services that we offer to other biotech companies in adjacent markets.

Ingredients / Product Play is our largest revenue driver, where we are selling our fully mature and scaled-up protein ingredients into the dairy, food, cosmetics, and nutraceutical industries.

Even with just our LGB protein, there are several massive multi-billion dollar markets available to us – current plan focuses on dairy, sports nutrition, and high-protein snacks.

# Perfect Day's precision fermentation biotech platform has broad applications across dairy, food ingredients, pharma, and beyond



Perfect Day  
Biotech Platform  
Current  
Product Play

## Key Segments in Dairy Protein (Advanced Final Product Stage)



Sports  
Nutrition



Milk Alternatives  
(e.g. oat, soy,  
almond)



Dairy  
Products

*(plus many more opportunities and adjacencies)*

## Other segments in Alternate Protein (Advanced Scaling Stage)



Sweeteners



Infant  
Nutrition



Perfect Day  
Biotech Platform  
Current  
Services Play

## Additional Opportunities Through Leveraging Biotech IP Platform & Engineering Program



Cosmetics



Pharmaceuticals



Materials



Meat &  
Meat Alternatives



# Combined precision fermentation dairy protein opportunity accounts for \$ 27 B market<sup>1</sup> and growing at 7%<sup>2</sup>CAGR



**\$ 10.5B**  
growing at 11.5% CAGR

Whey Protein for Sports Nutrition (e.g. protein powders, supplements, sports beverages)  
Notes:



**\$ 9.4B**  
growing at 6.99% CAGR

Protein for Yoghurt (traditional dairy product market)



**\$ 5.2B**  
growing at 4.5% CAGR

Protein for Ice Cream (traditional dairy product market)



**\$ 780M**  
growing at 12.6% CAGR

Protein for Alternative Milks (e.g. soy milk, almond milk, oat milk, plant-based fluid beverages)



**\$ 1.3B**  
growing at 4.45% CAGR

Protein for Cream Cheese (traditional dairy product market)



**\$ 355M**  
growing at 11.15% CAGR

Protein for High-Protein Snacks (emerging category)

**\$ 27 B**  
at 7%<sup>2</sup>CAGR  
(2022 numbers)

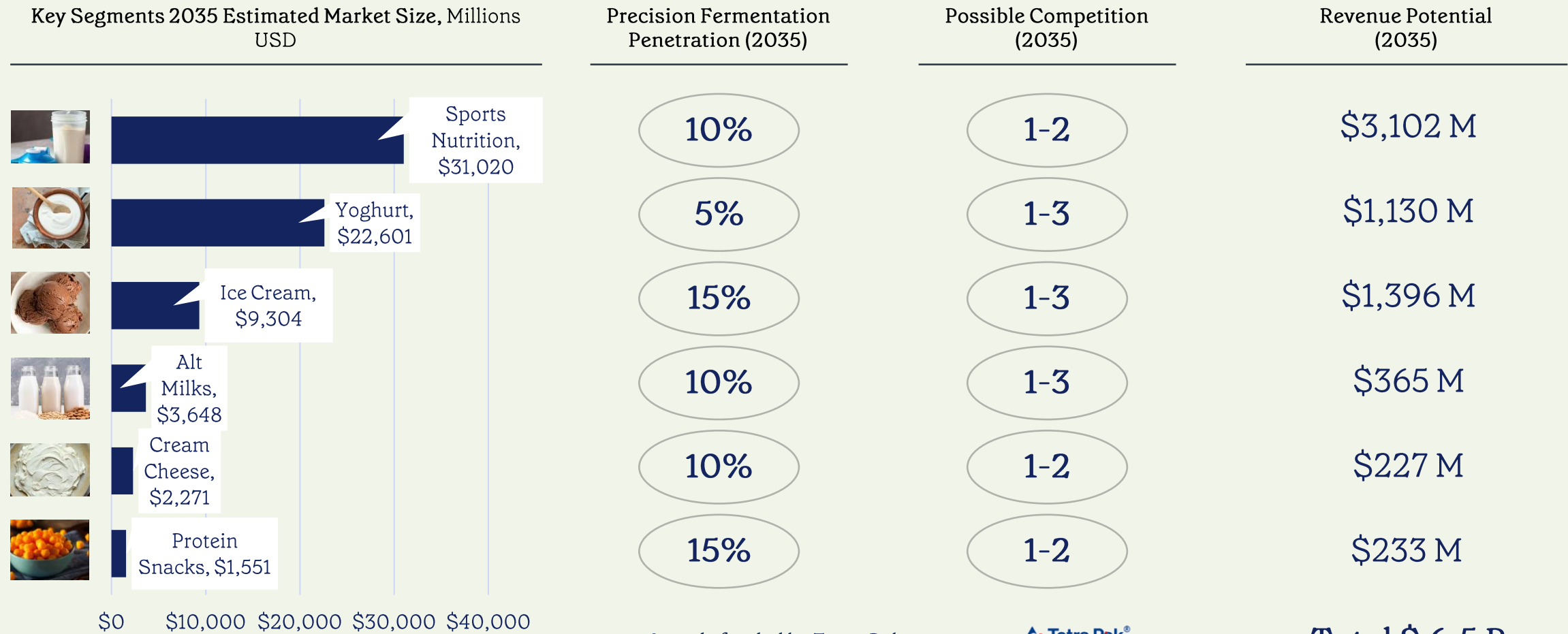
1) Above estimated market sizes account for the value of protein content in the overall category as of 2022

Example: Cream cheese market is \$ 51.5 B; protein component is just 3% of category size = \$ 1.3 B

2) CAGR shown is the average of each dairy category growth rate; the CAGR of precision fermentation within dairy is much faster, probably 50-60%. However, market insights for this specific sub-category do not yet exist.



# Our first protein alone can reach 10% penetration by 2030 and 15% by 2035, creating a revenue potential of \$6.5 B



First protein has numerous additional applications outside these categories.

A study funded by Tetra-Pak estimated precision fermentation penetration in dairy could be 35%-50% by 2030.



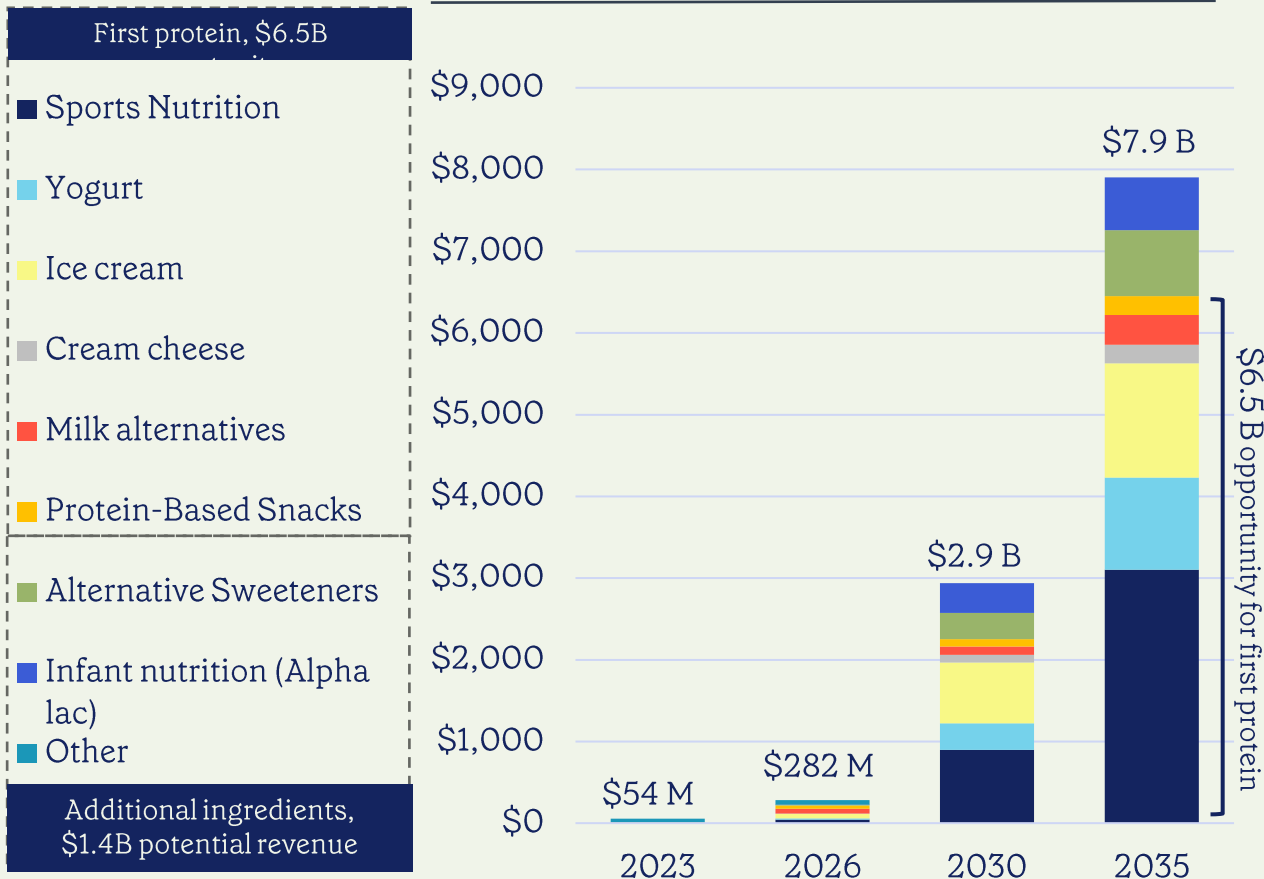
**Total \$ 6.5 B**



# In ingredient sales, Perfect Day could potentially reach \$7.9B by 2035; \$6.5B for the first protein, sweetener, infant, and others totaling \$1.4B

PD Ingredients Business can reach \$8 B by 2035

## Key Highlights

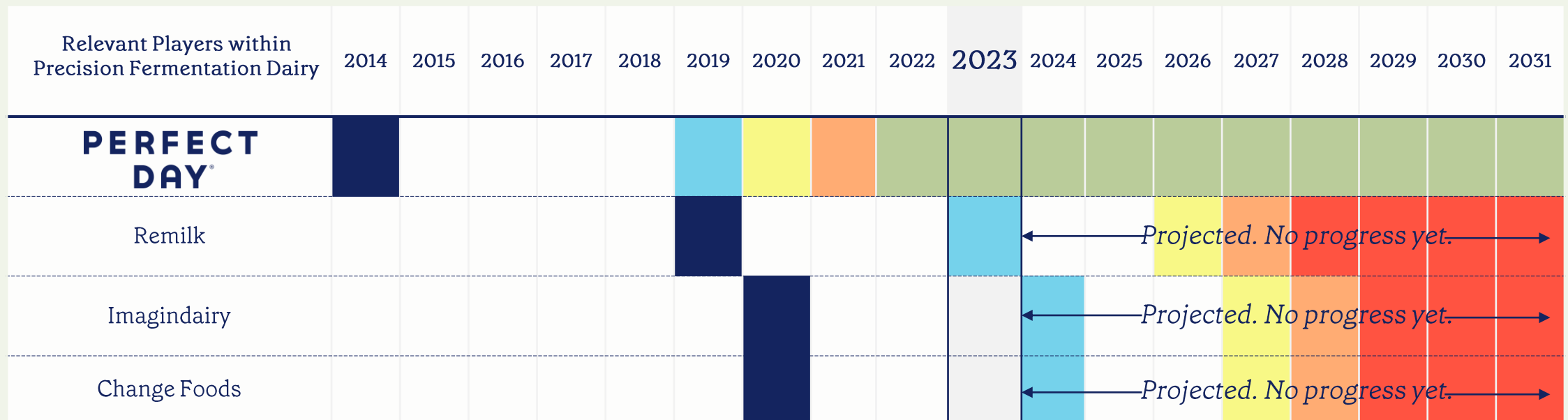


- PD can achieve \$2.9 B by 2030 and \$7.9 B by 2035
- Majority of revenue is contributed by the sports nutrition segment, which is among the fastest growing
  - \$18 B in 2030 / \$31 B in 2035
  - > 11% CAGR
- PD will have **market exclusivity** due to **early launches** with **key customers and multinational players**
- MNCs have **high switching cost/stickiness** for the **customers**
  - Customers care about their **brand equity considerably** – **unlikely to switch stable suppliers**, as the ingredients is proportionately a **marginal cost** for them with significant downside in case of **supply/ quality issues**
  - Perfect Day has a **strong reputation for high quality and reliability**; new entrants will not have the trust



# Perfect Day is 6+ years ahead of the competition; other players could hypothetically enter the market no earlier than 2028

Perfect Day will have market exclusivity for at least five more years



### Key

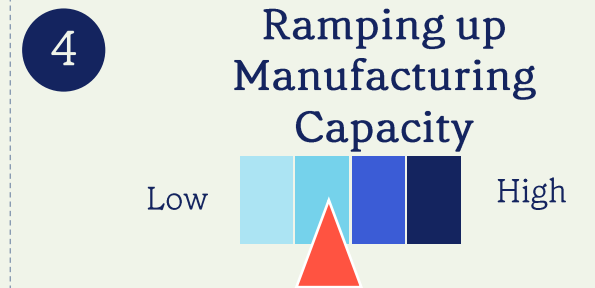
Step	Inception	First Regulatory Approval	Strain R&D	Scale-Up	Commercialization – First Mover	Commercialization – New Entrant
Execution Risk	Trivial	Easy now that Perfect Day has paved the path	Key barrier to achieving cost	Key barrier to achieving sales	The hard part is behind us – key relationships established	Extremely difficult for new entrants to compete with Perfect Day for sales



# PD has already unlocked key elements to achieve the target revenue



- 6 geographies unlocked including USA, India, Dubai
- 8 more in process



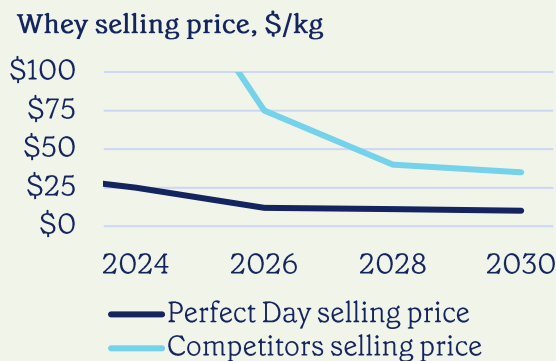
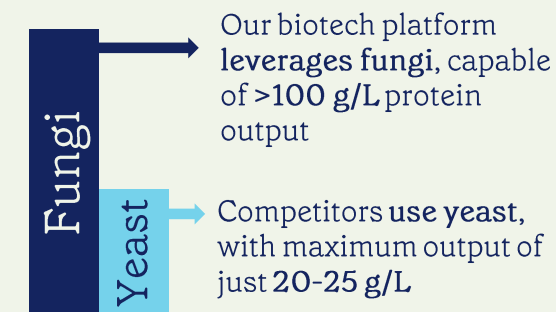
- First company to partner with biopharma CMO to expand capacity;
- First to buy and retrofit an existing facility in India



# PD strain and process engineering optimizes cost and robust IP protection creates a substantial moat

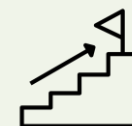


## Best possible Unit Economics



## Powerful IP

- Proven Robust Comprehensive patent coverage from strain engineering through end applications
- 144 patents globally
- E.g., Fonterra+DSM JV has been forced to negotiate a services contract with us since they expect to lose the ongoing patent case against us on Australian patent (breadth complaint)
- Any competitor attempting to use fungi will be much slower than PD, and will infringe on our strain-related IP



## Proven Scalability

- Only company to have achieved true scaled manufacturing
  - 500+ MT under production by PD in 2023 vs grams to kilograms by competition
  - Additional Scale up underway in former Sterling Biotech location in India
- Progress with Cargill co-location and Strata deal highlights how far ahead PD is



## Commercial Head Start

- Significant 5+ years head start
- Already commercialized with the major food & beverage companies (e.g., Nestle, Unilever, Starbucks, Bel, Mars)
- The key accounts that drive revenue are already in contract with Perfect Day



# Perfect day is already an approved supplier to Big food companies and exploring further avenues of collaboration

Perfect Day is supplying to Big Food players globally...

... who are excited about the potential application of the technology

Selected list of commercially successful contracts with marquee clients						
Customers	Launch Year	End Product Application	Potential Annual Volume At Scale	Potential Annual Revenue At Scale (USD)	Initial Geography	Potential Geography
	2022	Milk	15,000mT	~\$195m+	USA	
	2022	Chocolate Bar	5,000mT	~\$60m+	USA	
	2022	Cream Cheese	4,000mT	~\$50m+	USA	
	2022	Ready to mix protein powder	2,000mT	~\$25m+	USA	
	Q3 2023 (scheduled launch)	Ice Cream	8,000mT	~\$100m+	USA	

Current customers can easily expand with Perfect Day all around the world as we complete additional regulatory approvals ... and build plants in more geographies!

## Select Quotes from Perfect Day Customers and Partners

**Unilever:** “We want to move our whole Breyer’s line to Perfect Day’s sustainable protein.”

**Nestle:** “Nestle’s interest in Perfect Day’s Animal-Free Dairy remains high after our test market launch. We see Perfect Day as the way of the future.”

**Cargill:** “Perfect Day’s product was amazing, we haven’t seen anything like this before.”



## We have regulatory approval in key large markets and more approvals are on the way

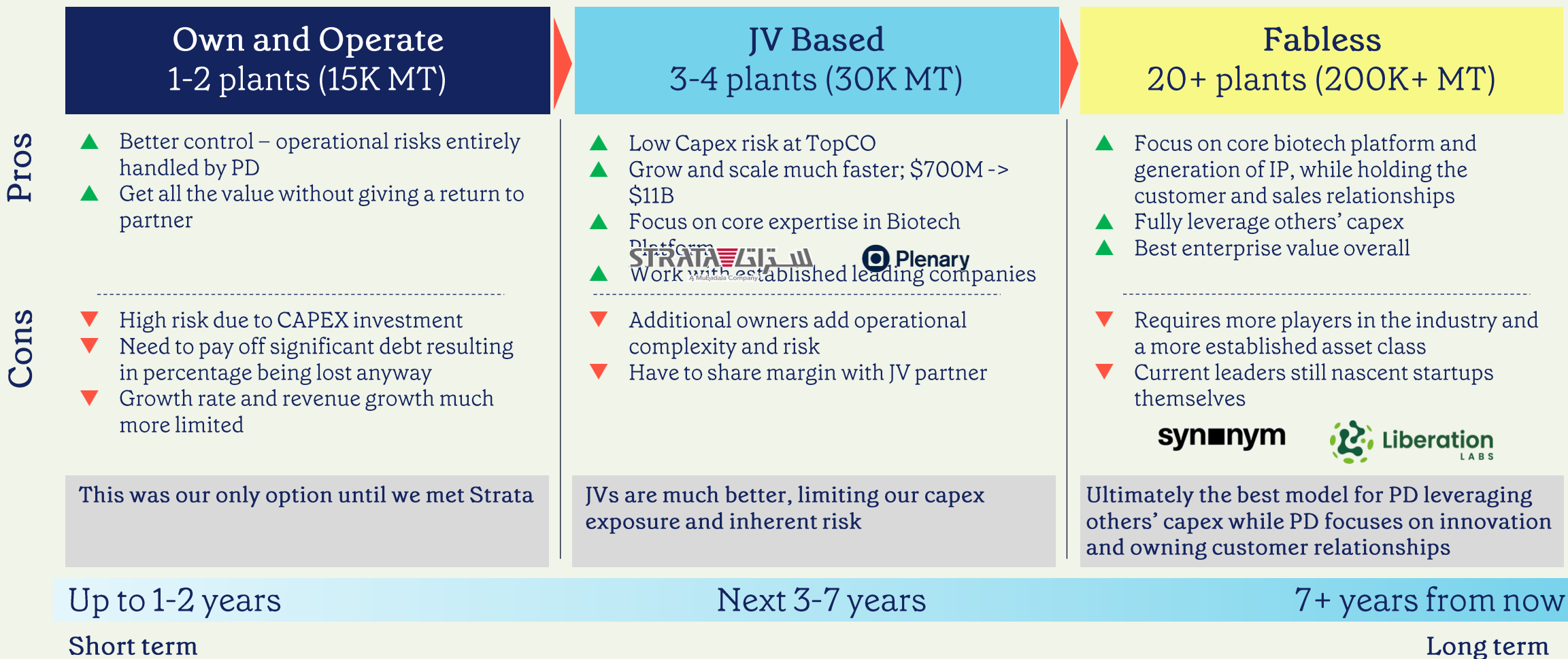


### Key Highlights

- Dubai completed in 2023; anticipate Abu Dhabi approval coming soon
- Already met with ADIO, IDB (Mr Arafat) in Abu Dhabi and discussion underway
- Mubadala has expressed interest in numerous additional geographies with PD for future plants



# Perfect Day plans to evolve from its own-and-operate model to an asset-light fabless model maximizing IP value and owning customer relations



Platform  
STRATA  
السقاية  
A Multidata Company  
Plenary

**synonym**

**Liberation**  
LABS



# Beyond our ingredients business, we offer Biotech Services to big and small biopharma; new entrants would rather work with us than compete

Perfect Day Biotech Platform is already developing products for Big Biotech Players

Example Quotes from Select Customers

Existing or active projects

Select Molecules	Select Companies	Upfront Potential Revenue (nth Bio project & license fee)	Ongoing Potential Annual Royalties
LGB (whey)	PERFECT DAY	(fully in-house)	\$400m
LAA (whey)	PERFECT DAY RECKITT BENCKISER	\$19m	\$50m
Brazzein	PERFECT DAY Ingredion	\$16m	\$12.5m
Ovalbumin (egg)	ONEGO	\$15m	\$125m
Casein	New Culture	\$33m	\$40m
Lactoferrin	Fonterra DSM	\$25m	\$4.4m
Collagen	GELTOR	\$20m	\$25m
Hypoallergenic LGB	PERFECT DAY	\$27m	\$60m
Hypoallergenic LAA	PERFECT DAY	\$25m	\$3m
Hypoallergenic gluten	ukko	\$32m	\$200m
Silk	Bolt Threads	\$17m	\$30m
Resilin	SMART Resilin	\$15m	\$2.5m
Insulin	Pfizer	\$35m	\$500m
Serum Albumin	Pfizer	\$29m	\$125m
Enzymes		\$8-10m (per molecule)	\$150m+
Other Food		\$20-25m (per molecule)	\$480m+
Other Materials		\$15-20m (per molecule)	\$200m+
Major Immunoglobulins	Pfizer	\$30m (per molecule)	\$375m+
Other Antibodies	Pfizer	\$26m (per molecule)	\$2.5b+

“Perfect Day has been an enormous trailblazer in getting a promising but challenging technology to work in practice ... we are thrilled for having the opportunity of working together with PD to follow in their footsteps.”



“We will be able to create a fantastic partnership with Perfect Day that will lead to more products and think of solutions for the near and distant future in the areas of environment and climate... we are absolutely in favor of a win-win situation for both parties, we will be more than happy to partner and share the expected <sup>million</sup> millions/billions of dollars.”



“We can very well imagine working together with Nth Bio beyond a single project ... in which Vivici commits to spending more with Nth Bio. This can either drive a broader lactoferrin project, or an additional project on top of the lactoferrin work.”

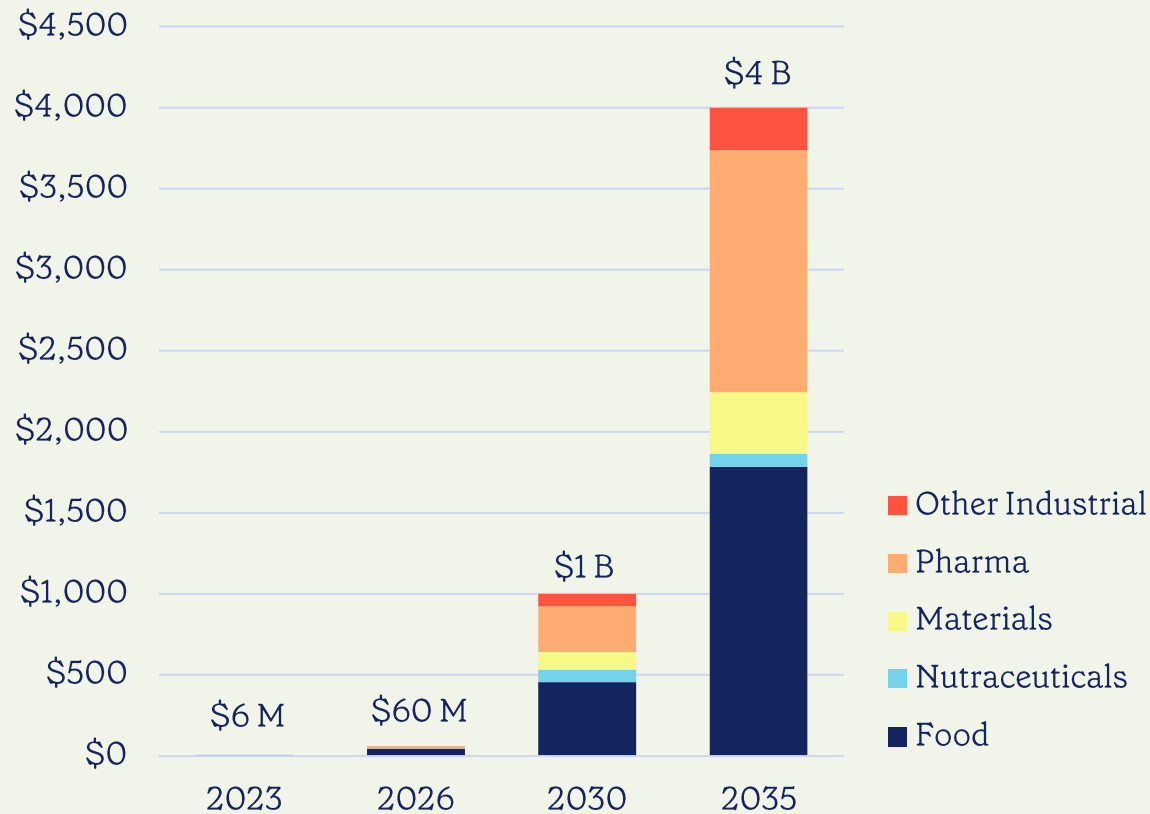
– Discussion with Fonterra/DSM JV, Vivici





# As such, services business has additional potential revenue of \$4B in 2035

## Perfect Day services revenue can reach \$4B by 2035



## Key Highlights

- PD can achieve \$1 B by 2030 and \$4 B by 2035
- Key technology advantages in protein production can extend into Pharma, a potential \$1.5 B opportunity by 2035
- **Market leadership** will lead to significant royalty potential as a fraction of \$65 B precision fermentation market size

## Key Customers

### Current and Upcoming Accounts



### Potential Future Accounts



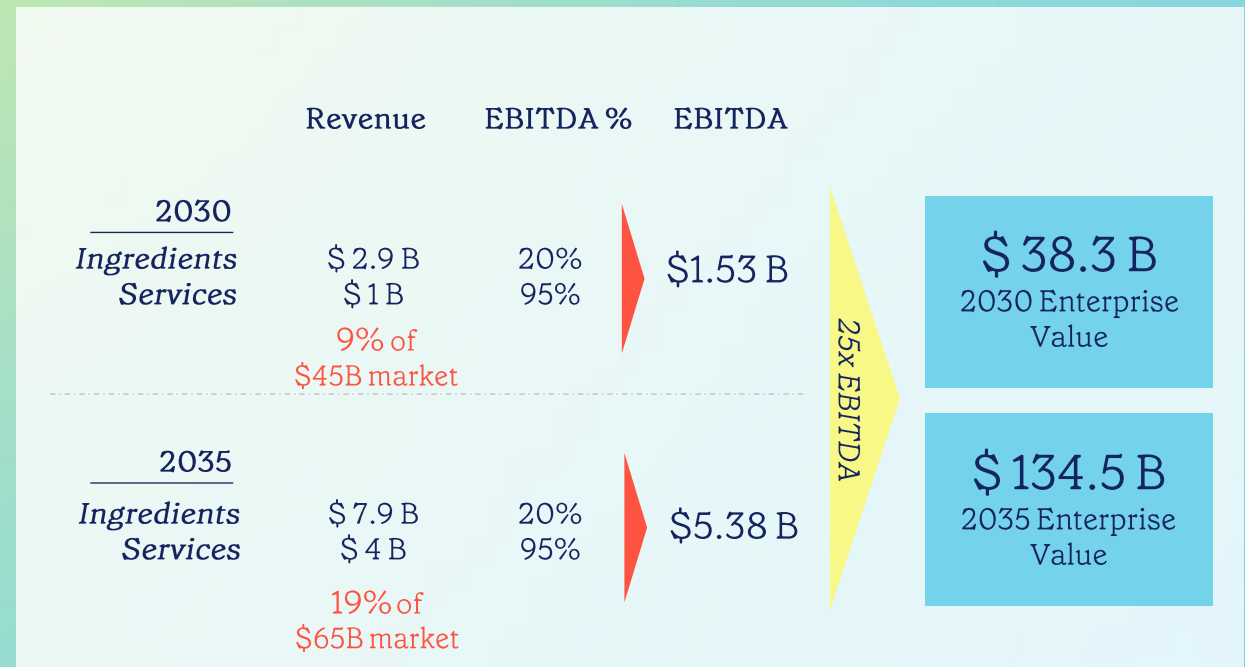


# Being a biotech platform, Perfect Day can expect 20-40x EBITDA multiple, leading to a 2035 EV of \$100-200 B

Perfect Day can justify exit multiple of 25x...

... leading to a 2035 enterprise value of \$135 B

Comparable Biotech Companies	EBITDA Multiple
Sensient	22.9
Novozymes	25.8
DuPont	29.9
Givaudan	31.6
Chr. Hansen	39.3



# Appendix

# Perfect Day IP Overview

- We have in-sourced the most relevant background IP with **exclusivity in dairy**
- Any competitors will need to develop their own background IP (**30+ years**), or avoid dairy entirely
- Very few groups in the world have expertise in heterologous protein production; we have **locked down all significant players**
- Our portfolio has **over 100 patents**, providing **end-to-end protection** from strain engineering to compositions of matter to end-product applications
- Protections filed **globally to cover key relevant geographies**, including US, Canada, China, Europe, Australia, India, Japan, and more
- Simultaneously **expanding technology platform & patent protection** beyond milk proteins

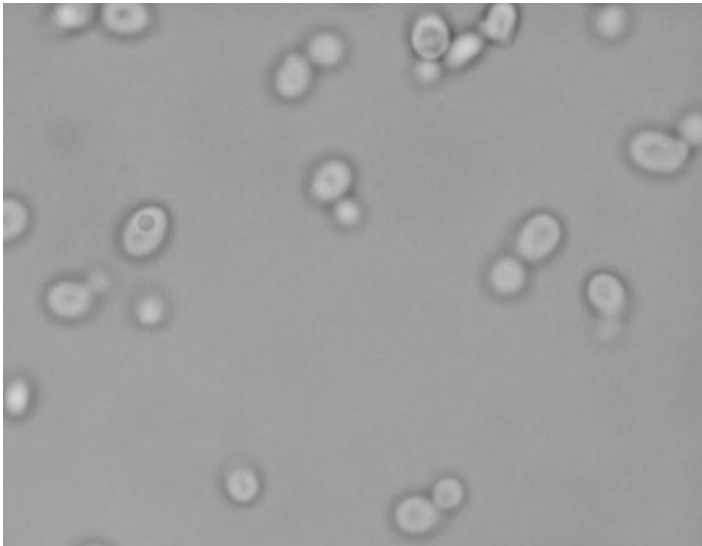
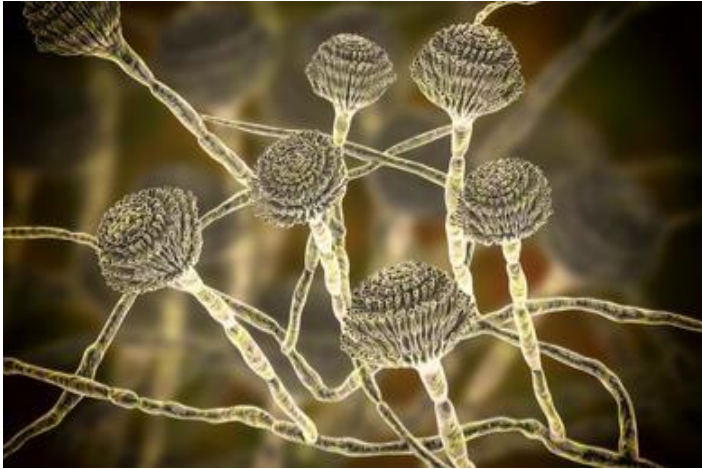
*Our extensive portfolio currently spans:*

Strain	Various strain modifications to enable heterologous protein production
Methods	Genetic and fermentation methods to make homokaryotic filamentous fungi
Recombinant milk protein composition	Both simple and complex polymers of whey and casein
End applications	<u>Any</u> substitution of dairy products using combination of recombinant whey (LGB, LAA), or casein (K-casein, B-casein), use of recombinant dairy as egg-replacer, use of recombinant dairy in various cosmetics & pharma applications
Other	Recombinant production of milk lipids, design of hypoallergenic milk proteins, etc.

# Background / Precision Fermentation primer

- Most companies use yeast or bacteria because they're "easy to work with" – not realizing that these organisms are **economically infeasible** for low-cost proteins
- **Fungal strains** are the only ones capable of high protein output, but have been historically hard to work with (see next slide)
- It took the industry 30+ years to create the mature enzyme-producing strains in market today. The best ones by far were owned by VTT (Finnish gov research org).
- We partnered with VTT in 2016 to get full access to their strains, exclusivity in dairy, and nonexclusive access to their IP for any future categories
- Since 2016, we've invested \$500+ million creating an even stronger strain platform than VTT had – with our head start and R&D machine, now we're

# Perfect Day can engineer strains more effectively and more quickly than anyone else



- Fungi were historically hard to work with because they are multi-celled organisms, not single celled
- All modern biotech automations and high throughput screening methods rely on single cells
- PD is the first company to engineer fungi into a single-cell shape to allow for ultra high throughput cell engineering – this is key IP

# Perfect Day has blocking IP on *any* new fermentation-derived ingredient

- The key background IP that PD initially needed to license was related to “**Protease knockouts**” – essentially genetic deletions in the parent strain that removed its ability to create protease enzymes. Proteases break down proteins, so deleting proteases was the key way to increase production of any protein.
- This is sufficient if your end product is an enzyme, as the industry had done for 40+ years. Enzymes are used in very small quantities, so impurities are less of an issue. But PD was the first to realize that when making a food ingredient, you also need “**Lipase knockouts**”, to delete lipase enzymes responsible for breaking down fats and oils. Without lipase knockouts, your ingredient will create an awful rancid flavor in the end application.
- Virtually every strain of microbe produces lipase, and so any company in precision fermentation will eventually need to use or infringe upon this IP. It’s our strongest and broadest coverage.

# Perfect Day has broad patent coverage of product applications for milk products

- Our first priority back in 2014 was to protect the end applications of our protein.
- We have 9 granted patents and more than 100 filed globally, covering any dairy or dairy-like product made with a non-animal dairy protein.
- This means that regardless of how they create it, any other milk protein company will be infringing on PD's IP as soon as they try to launch a product.

# Case Study: New Zealand dairy co needs Perfect Day IP

- **2021:** Fonterra forms joint venture with DSM to produce dairy enzymes
- **2022:** JV challenges PD's patent in Australia
- **2023:** Realizing they won't win, JV approaches PD to strike a deal
- **Present day:** PD successfully negotiating deal to develop strain for JV (\$\$\$)

# Case Study: Onego Bio

- **2021:** Onego Bio founded to create egg white proteins
- **2022:** Onego's technology team concludes they cannot engineer strains as well as Perfect Day
- **Present day:** PD in multi-million dollar contract to create egg-white strain for Onego, using proceeds to invest in our R&D machine and further cultivate our edge

# Moving forward: 5 models of monetizing IP

## Perfect Day's core ingredient models

1. PD creates strain, PD manufactures -> We get all the value
2. PD creates strain, Partner manufactures -> We get licensing revenue from partner

## Nth Biology Services models

1. Biotech client -> We build you a strain (\$), and then take royalties (\$)
2. Ingredient client -> You pay us to build a strain (\$), and then we give you royalties (\$)

(These would then be PD's strains, run in our plant or a partner's plant)

## Competition-based model

- In the event any biotech ingredient company gets to market, they will likely infringe on some of Perfect Day's IP – we can go after them and strike a deal to get some or all of the value

# Competitive Moats

<u>Company/Concept</u>	<u>Strain Engineering</u>	<u>Fermentation</u>	<u>Downstream Processing</u>	<u>Product Application</u>
Any milk protein <i>(e.g. Legendairy, Remilk, Change Foods)</i>	Blocked / infringes PD IP	Perfect Day trade secrets	Perfect Day trade secrets	Blocked / infringes on PD IP
Egg protein <i>(e.g., Every Co., Onego)</i>				
Any other protein for food				
Any other low-cost, high-volume protein	Will rely on PD platform to achieve economics / speed to market			

# Big Picture

- Our goal is to be an irreplaceable powerhouse of the biomanufacturing industry.
- We make huge, stable topline revenue from core ingredients such as LGB, LAA, and Brazzein
- We supplement with extremely high margin services and IP-based (royalty, licensing) revenues
- Overall long-term gross margins >50-60% and flexibility to choose future ingredients to create & manufacture, or focus more on IP business long-term