THE ECONOMIC OPPORTUNITY OF CULTIVATED MEAT IN THE UK

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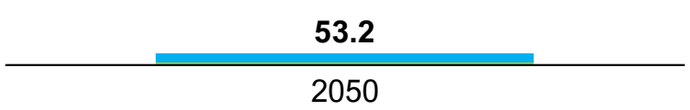
CURRENT POLICIES PUT THE UK ON TRACK FOR A £1.1 BILLION CULTIVATED MARKET BY 2050

UK cultivated market size projections, based on level of policy support and investment, in £B, future prices

Low Ambition

UK market size for end-product by 2050
(£M, future prices)

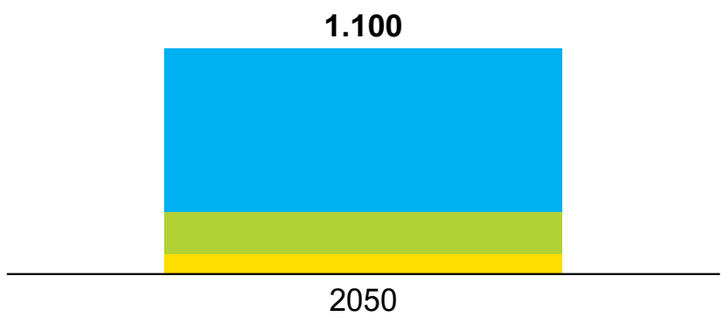
53 £M



Business As Usual (current policies)

Meat Seafood Dairy Egg

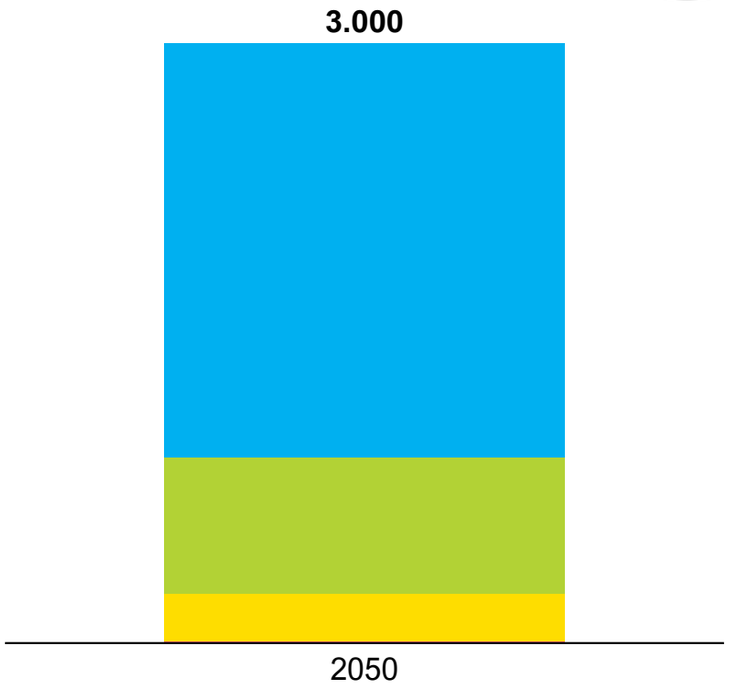
1.1 £B



Projection in current course`

High Ambition

3 £B



Notes: The market sizes represent the total addressable market in the UK based on projected demand and product prices, irrespective of domestic production and imports. Based on Systemiq analysis building on FAO consumption data

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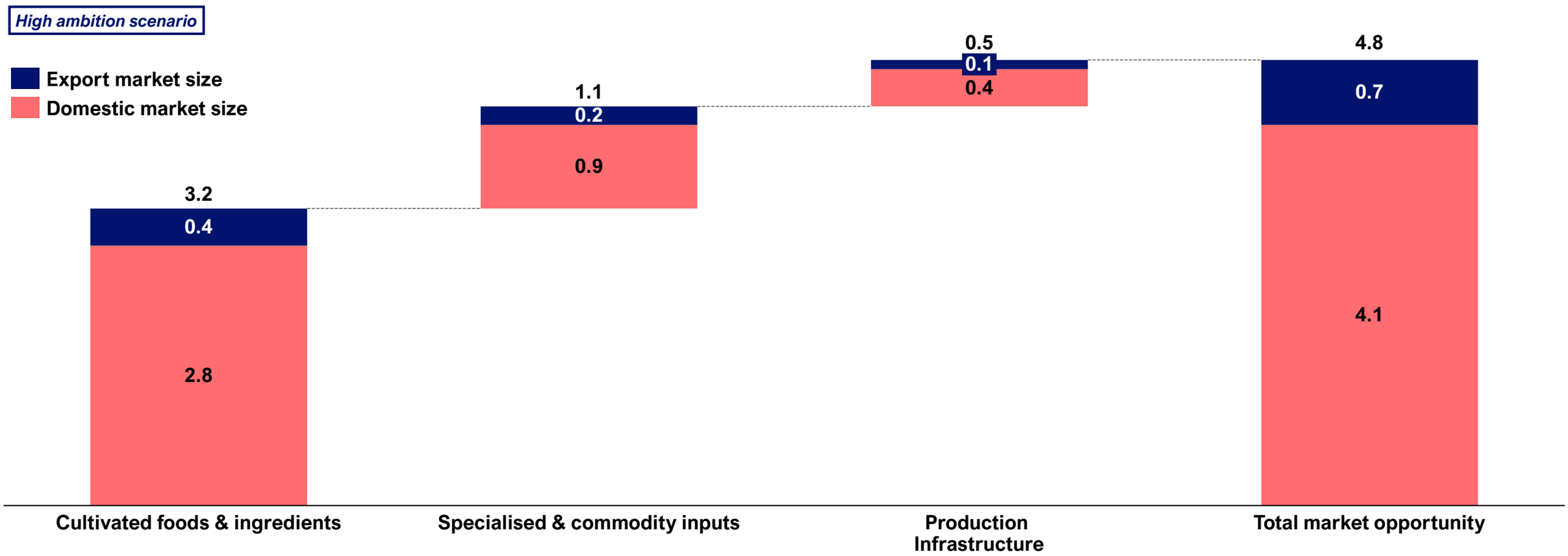
WITH MORE AMBITIOUS POLICIES, CULTIVATED COULD CREATE CLOSE TO £5 BILLION OF ECONOMIC VALUE, INCLUDING EXPORTS

UK domestic and export market sizes for cultivated foods,
(£B, future prices)



Note: The domestic market sizes shows the market size serviced by domestic production, which explains the slightly lower number than the total addressable market on the previous page. Sources: [1] UK's Modern Industrial Strategy, June 2025; [2] GFI, link; 3 GFI, link

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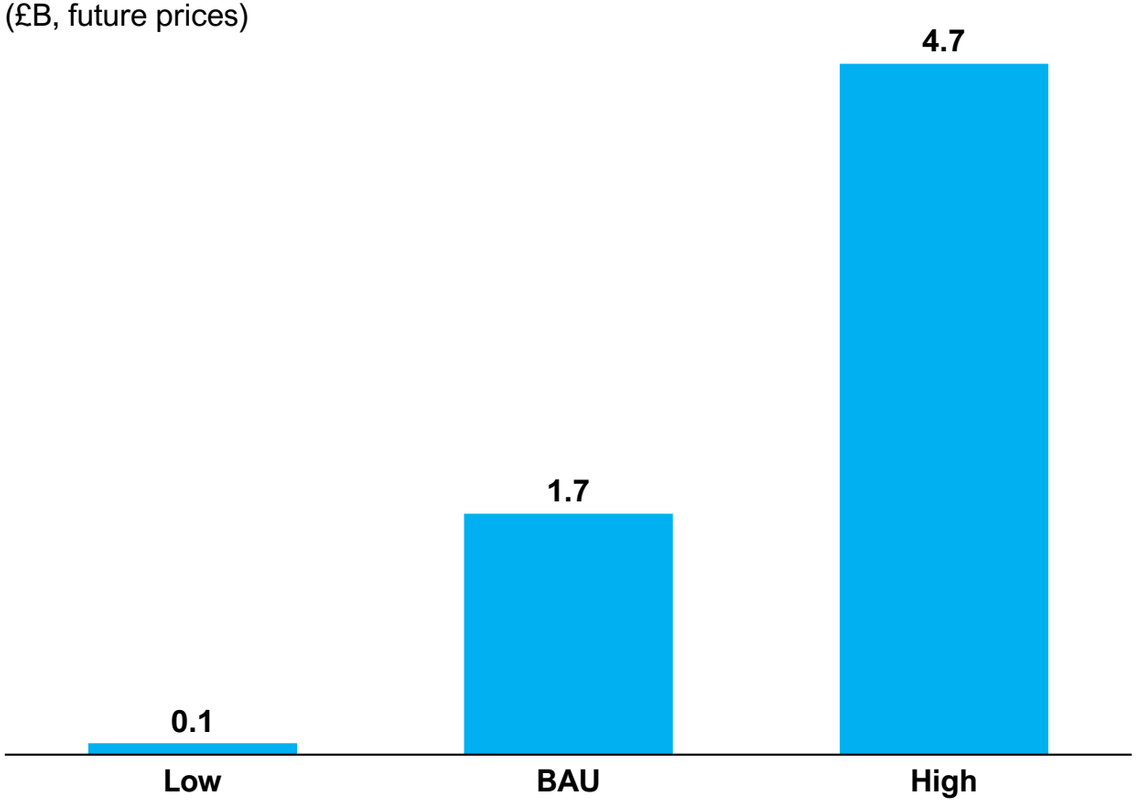
THE ECONOMIC BENEFITS OF A HIGH AMBITION SCENARIO COULD BE ~3X HIGHER THAN THE BAU SCENARIO FOR GVA AND EXPORTS

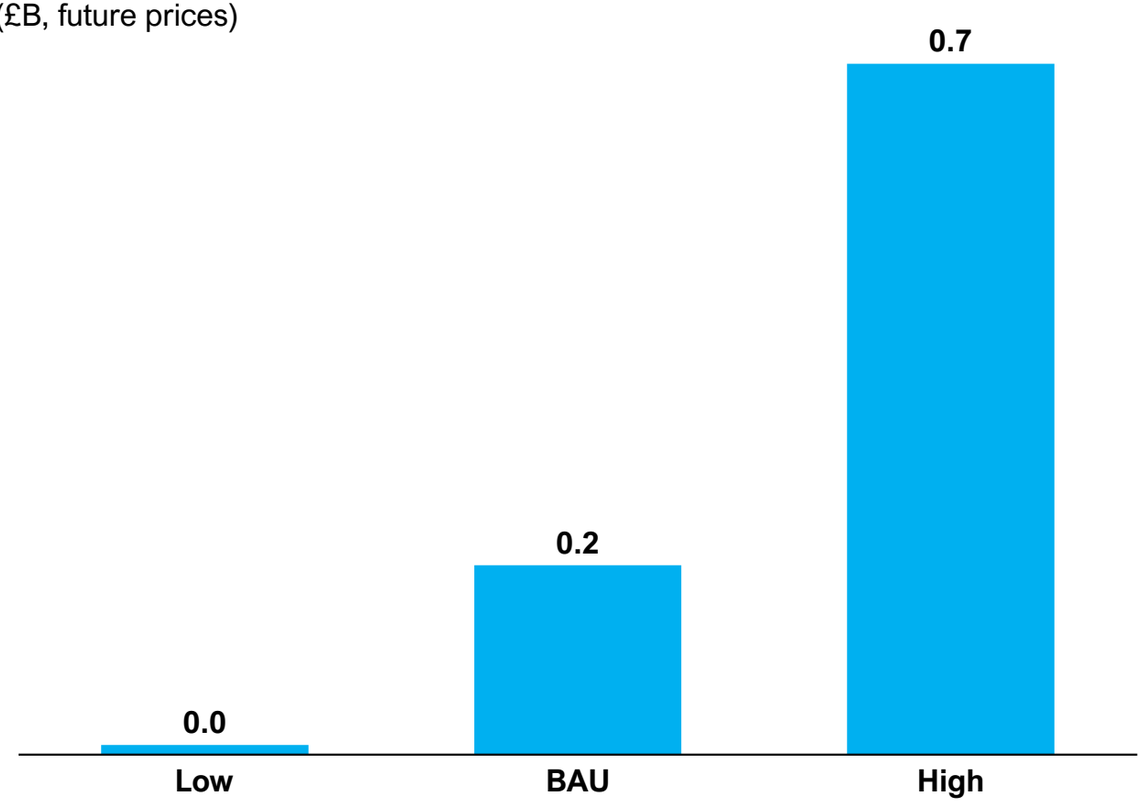
Gross Value Added[1]

Total annual GVA contribution
(£B, future prices)



Exports

Annual market value of exports
(£B, future prices)



Notes & Sources: [1] Total GVA contribution is based on 1) the direct GVA contribution + indirect and induced impact of the domestic cultivated end-markets, 2) the direct GVA contribution + indirect and induced impact of the export markets, split in cultivated end-market, high- and low-value input markets, high- and low-value infrastructure markets

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POLICY SCENARIOS FOR THE DEVELOPMENT OF CULTIVATED MEAT IN THE UK TO 2050 (1/2)

Key assumptions across scenarios

Cultivated meat scenarios	Low Ambition	Medium Ambition (current trajectory)	High Ambition
R&D	▪ **Investment in AP R&D falls** from a high average of roughly £15M a year since 2020 to close to zero, with no specific AP-focused funding opportunities ▪ **AP science and innovation is not recognised in national government strategies** ▪ **UK abandons engineering biology as a key focus** turning attention to other tech areas (e.g. quantum) which reduces public investment opportunities	▪ **Ongoing public funding programs** (e.g. UKRI, Innovate UK) **support alternative protein R&D**, though often broad and not targeted at cultivated ▪ **Investment of ~£20 million per year in R&D** for cultivated meat, the majority from the private sector ▪ **Engineering biology continues to be a key aspect of govt's science and technology framework**, giving cultivated meat a clear 'home' for funders. ▪ **Competitive grant access**, with room for improvement in funding agility and alignment with scale-up needs ▪ **Increased visibility of alt protein in national innovation strategies**, (e.g. for net zero) but limited focus on cultivated meat innovation within this	▪ **Generous, long-term and specific funding for cultivated meat** across all TRL levels. ▪ **Investment of >£50million per year in R&D** for cultivated meat, with an increased share from the public sector ▪ **Cultivated meat is recognised in national strategies** (e.g. food, net zero, industry)
Financing	▪ **R&D tax relief cuts** are introduced by HMT, disincentivising investment and impacting viability of cultivated meat companies ▪ **Public investment schemes are too prohibitive to fund cultivated meat infrastructure** (e.g. National Wealth Fund)	▪ **General R&D tax reliefs** are available and moderately supportive, especially for early-stage companies. ▪ **No sector-specific capital investment incentives** for cultivation infrastructure or equipment. ▪ **High up-front CAPEX remains a barrier**, though some access to innovation loans and public-private co-financing exists via existing programs (e.g. British Business Bank). However these are hard to access and biotechnology is not a core focus (e.g. National Wealth Fund).	▪ **Targeted support for scale-up** e.g. public investment in food-grade infrastructure or R&D credits for startups to use infrastructure ▪ **Reforms to public investment schemes** carve out clearer role for biotechnology infrastructure ▪ **Procurement rules** are altered to incentivise public sector institutions to purchase cultivated meat products over meat/dairy (e.g. introducing sustainability criteria)

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POLICY SCENARIOS FOR THE DEVELOPMENT OF CULTIVATED MEAT IN THE UK TO 2050 (2/2)

Key assumptions across scenarios

Cultivated meat scenarios	Low Ambition	Medium Ambition (current trajectory)	High Ambition
Regulations	▪ **FSA capacity constraints** become too prohibitive for most companies to make it to market in a time/ cost effective way ▪ **No specific regulatory advice is published for cultivated meat** leading to uncertainty and disincentivising investment	▪ **Novel Foods regulatory pathway is well-established**, with a relatively efficient approval process (vs EU) ▪ **UK FSA demonstrates openness to cultivation,** though capacity constraints can delay authorisations. ▪ **Precision Breeding Act as legislated** does not permit greater uptake of cultivated, but does indicate ▪ **UK maintains ability to authorize cultivated meat independently** after signing SPS agreement with EU, and EU permits limited imports with appropriate labelling	▪ **FSA capacity is sufficient to overachieve statutory approval timelines** (~18 months), making as competitive as anywhere globally to come to market ▪ **Detailed pre-submission consultations are the norm** for all companies ▪ **FSA consistently utilises risk assessment opinions from other trusted regulators** to substantially reduce authorisation timelines ▪ **Political environment actively supports authorisations** (e.g. ministers legislate to reduce risk management timeline) ▪ **UK maintains ability to authorize cultivated meat independently** after signing SPS agreement with EU**,** and EU permits appropriately labelled imports without restriction
Naming	▪ **Restrictions on use of 'meat' names are tightened,** barring cultivated meat products from being advertised as such, for example in order to align with EU via sanitary and phytosanitary standards on food labelling. This leads to confusion and lack of consumer trust.	▪ **Restrictions on naming maintained at current level,** allowing cultivated meat products to be advertised as 'cultivated chicken', 'cultivated beef', etc ▪ **A harmonised approach** to naming across industry is in place ▪ **Consistent qualifiers / terminology used,** e.g., 'cultivated' which increases consumer recognition	▪ **Restrictions removed on naming cultivated meat,** with names based entirely on the molecular and nutritional content of the product, not how it was produced ▪ **Standardised use of qualifiers amongst industry,** e.g. 'cultivated' increases recognition amongst consumers

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ASSUMPTIONS

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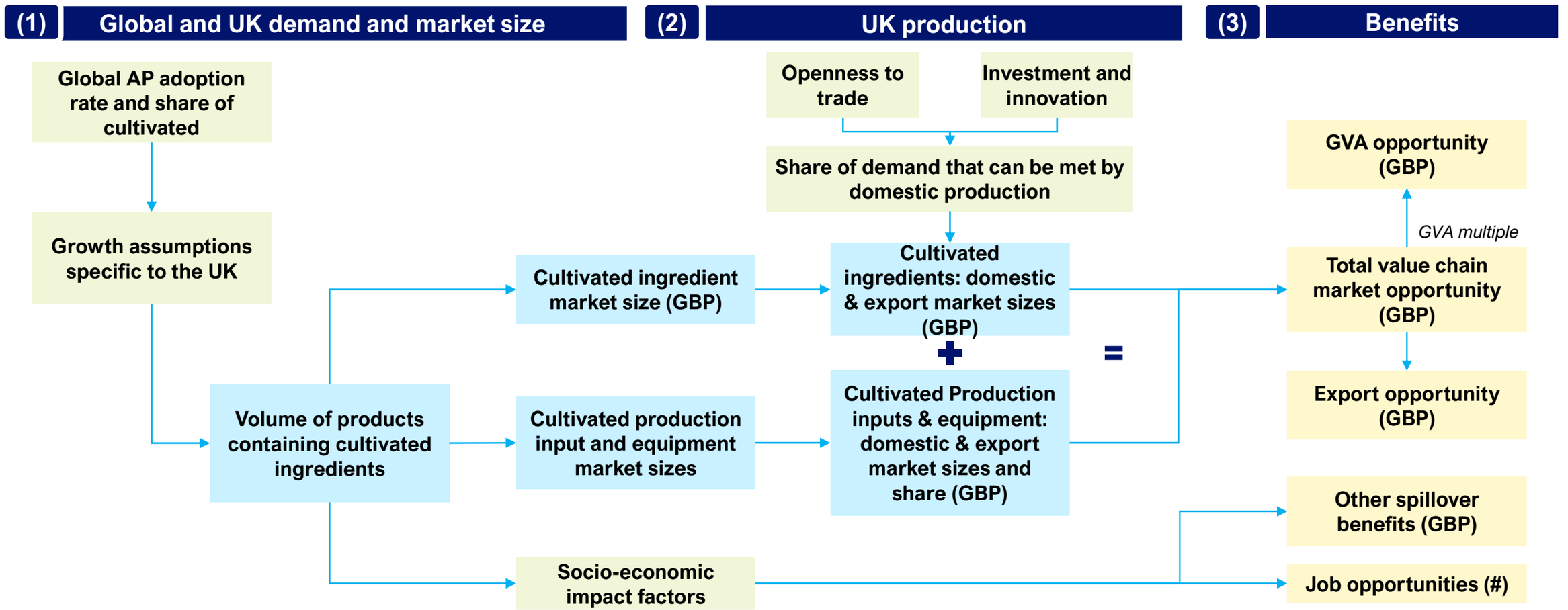
ANALYTICAL APPROACH: COMBINING DEMAND FORECASTS WITH UK-SPECIFIC POLICY ASSUMPTIONS

Inputs | Calculation | Output

Approach to be developed for three scenarios covering different patterns of demand and government support/ investment



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CONSUMPTION VOLUMES | ADOPTION RATES

- The market adoption of the cultivated technology is based on 3 parameters:

1. **Overall adoption of alternative proteins** (made up of plant-based, biomass & precision fermentation, and cultivated technologies)
2. **Share of alternative protein products classified as "cultivated food"**: e.g. 20% of alternative meat products is a cultivated product
3. **Share of cultivated product consisting of cultivated cells**, to account for hybrid products that include other technologies: e.g. 20% of the cultivated burger consists of cultivated cells, the other 80% is a plant-based burger

Note that this approach can account for products combining multiple technologies, without prescribing the mix of all possible combinations.

	%	1 Alternative Protein adoption rate			2 % of AP products using cultivated technology			3 Share of product is cultivated (accounting for hybrid products)		
		Low	*Medium*	*High*	*Low*	*Medium*	*High*	*Low*	*Medium*	*High*
Cultivated	**Meat**	8	20	37	**6**	**20**	**30**	**15**	**20**	**20**
	Seafood	5	15	35	**6**	**20**	**30**	**15**	**20**	**20**
	Dairy	20	35	55	**1**	**3**	**5**	**15**	**20**	**20**
	Eggs	5	15	35	**1**	**3**	**5**	**15**	**20**	**20**

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APPROACH EXPLANATION | DOMESTIC & EXPORT MARKET SIZE

Domestic market

- To understand what share of the UK market will be met with domestic production, we are calculating what the share of domestic self-sufficiency is for proxy sectors
- We are making use of the following metrics:
  - A. Domestic production
  - B. Imports
  - C. Exports
- Our formula to calculate the domestic self-sufficiency is: (A – C) / (A – C + B)
- To get to the domestic market size, the resulting percentage is multiplied by the total UK market size
- See next page for the proxy sectors

Export potential

- To understand the export potential of the UK, we have calculated what share of the global market size is currently met by UK exports for proxy sectors
- We are making use of the following metrics:
  - A. Global market size
  - B. UK market size
  - C. UK exports
- Our formula to calculate the export potential is: C / (A – B)
- To get to the full export market size, the resulting percentage is multiplied by the total ROW market size
- See next page for the proxy sectors

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APPROACH EXPLANATION | GVA

- **Gross value added (GVA)** is a measure of the contribution to GDP made by an individual producer, industry or sector
- **Total GVA contribution from AP value chain estimated based on:**
  - 1. Direct economic contribution from domestic cultivated market
  - 2. Additional export opportunities
  - 3. Indirect & induced GVA (e.g., total spending in the economy) using proxy GVA multipliers

1. **Direct GVA contribution:** calculated from total cultivated market size using a **GVA rate of 35%**
2. **Direct GVA contribution** = Domestic market size * GVA rate
3. **Indirect & induced impact:** calculated from direct GVA **3.7x multiplier** to estimate total GDP impact that cultivated brings to UK economy
   - Indirect GVA contribution = Domestic market size * GVA rate * GVA multiplier
4. **Export opportunities:** using proxy markets to identify GVA rates and multiplier assumptions:
   - Export GVA contribution = (Export market size * GVA rate) + (Export market size * GVA rate * GVA multiplier)
     - **Cultivated exports** – based on UK CM market
     - **Input exports** – based on UK Pharmaceutical market
     - **Production infrastructure** – based on UK Manufacturing market

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