FutureBridge

EXECUTIVE BRIEF 2026

# AGRITECH'S INNOVATION PARADOX

## Breakthroughs everywhere. Nutritional impact still below its potential.

**Why Food & Nutrition leaders must rethink adoption, evidence and value capture**



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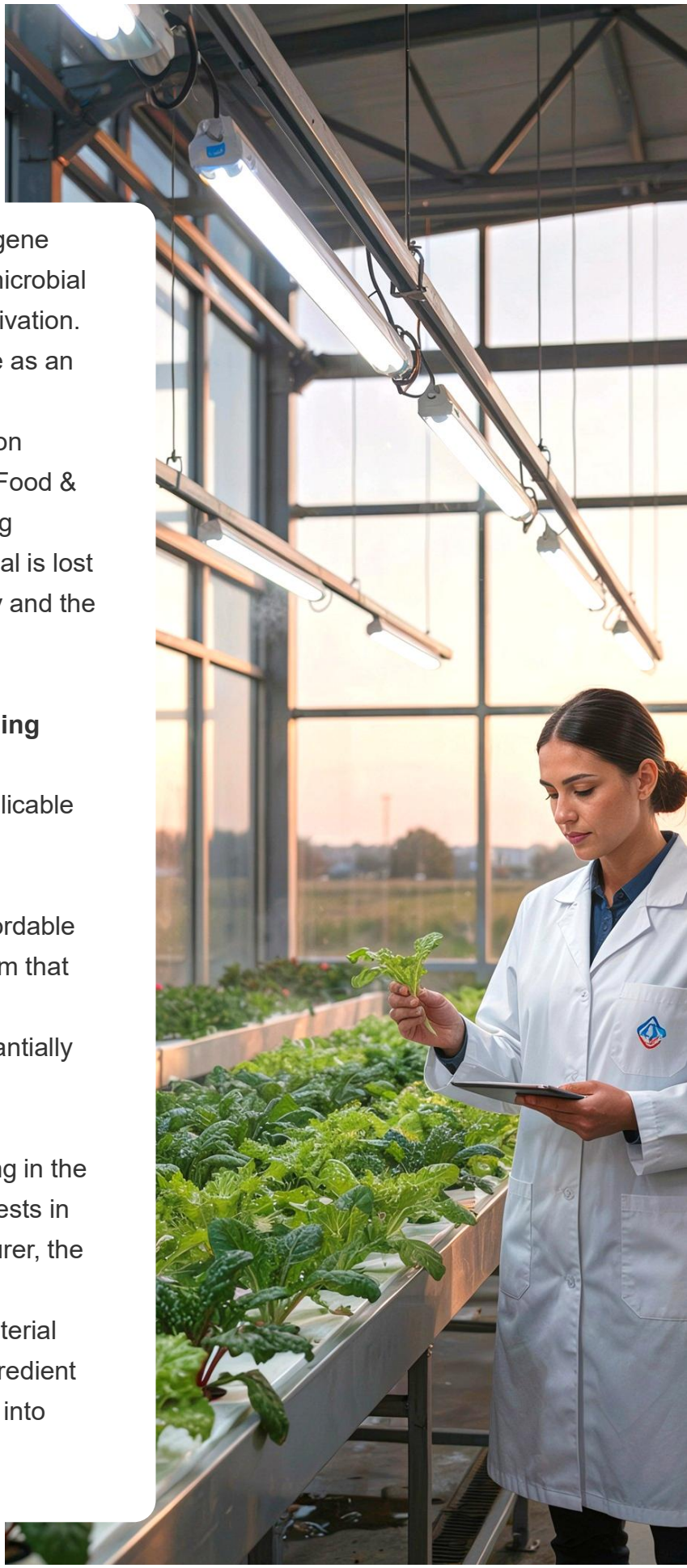
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01. EXECUTIVE SUMMARY

# The breakthrough may be adoption



Agricultural innovation is advancing across gene editing, biological delivery, crop signalling, microbial engineering and controlled-environment cultivation. Yet a scientific breakthrough is not the same as an adopted agricultural solution, and neither automatically becomes a measurable nutrition outcome. The central strategic question for Food & Nutrition companies is not whether promising technologies exist. It is why so much potential is lost between the laboratory, the farm, the factory and the consumer.

The **contrarian hypothesis** is that the **binding constraint is increasingly the system of translation**: fragmented incentives, non-replicable performance, manufacturing incompatibility, regulatory uncertainty, missing evidence of nutritional relevance and weak routes to affordable scale. This is a proposition to test, not a claim that agricultural innovation has universally failed. Adoption and nutrition outcomes vary substantially across technologies and markets.

The industry may therefore be underinvesting in the capability to adopt innovation, even as it invests in discovering more of it. For a food manufacturer, the strategic opportunity is to shape upstream technology development around the raw-material and consumer outcomes that matter; for ingredient businesses, it is to convert agronomic gains into differentiated, reliable specifications.

02. THE MISSING LINK

# Why promising innovations do not become food-system value

Three illustrative scenarios make the disconnect tangible. A biological formulation shows impressive bench efficacy but inconsistent performance under commercial storage and field conditions. A nutrient-enriched crop meets its laboratory composition target but cannot satisfy milling, processing or procurement specifications. A plant-associated B12 system produces a promising signal in controlled experiments but cannot yet demonstrate a safe, stable and nutritionally meaningful dose in the food people actually eat.
These are plausible failure modes, not verified failures of named developers.

## Five points where the system breaks

LABORATORY CONSUMER

**Pilot success does not travel**

**A strong agronomic claim misses buyer needs**

**Adoption economics are unattractive**

**Regulatory and trust barriers arrive late**

**Nutrition impact is overclaimed**



| | FAILURE MECHANISM | WHAT GOES WRONG | LEADERSHIP RESPONSE AND OPPORTUNITY |
|---|---|---|---|
| 1 | **Pilot success does not travel** | Performance observed in one greenhouse, season, soil or genotype disappears across geographies. | Build multi-environment replication, quantify downside variance and segment the addressable market by conditions where the technology reliably works. |
| 2 | **A strong agronomic claim misses buyer needs** | Yield or input efficiency improves but grain functionality, nutrient quality, shelf life or processing specifications deteriorate. | Co-design field and food endpoints with processors and nutrition teams; sell a crop-to-product outcome rather than a farm-only claim. |
| 3 | **Adoption economics are unattractive** | Added application complexity, seed cost, licensing fees or segregation costs exceed the grower's share of the benefit. | Re-engineer channel economics, risk sharing, financing and contracting; reward verified outcomes rather than input volume. |
| 4 | **Regulatory and trust barriers arrive late** | A gene-edited trait, microbial intervention or novel material faces unexpected market-access, traceability or communication constraints. | Run regulatory and social-license diligence before scale-up; target feasible markets and build transparent evidence packages. |
| 5 | **Nutrition impact is overclaimed** | A nutrient increase in a crop is assumed to translate into meaningful intake, absorption or health benefit without testing losses and dietary use. | Adopt an evidence ladder: composition → retention → bioaccessibility → absorption/appropriate consumption → population relevance. |

## The implication is uncomfortable

A technology may pass a scientific milestone and still be an unsuitable investment for a food business. Innovation committees that review only novelty, patents, technical readiness or headline yield risk selecting projects before their most important constraints have been tested.

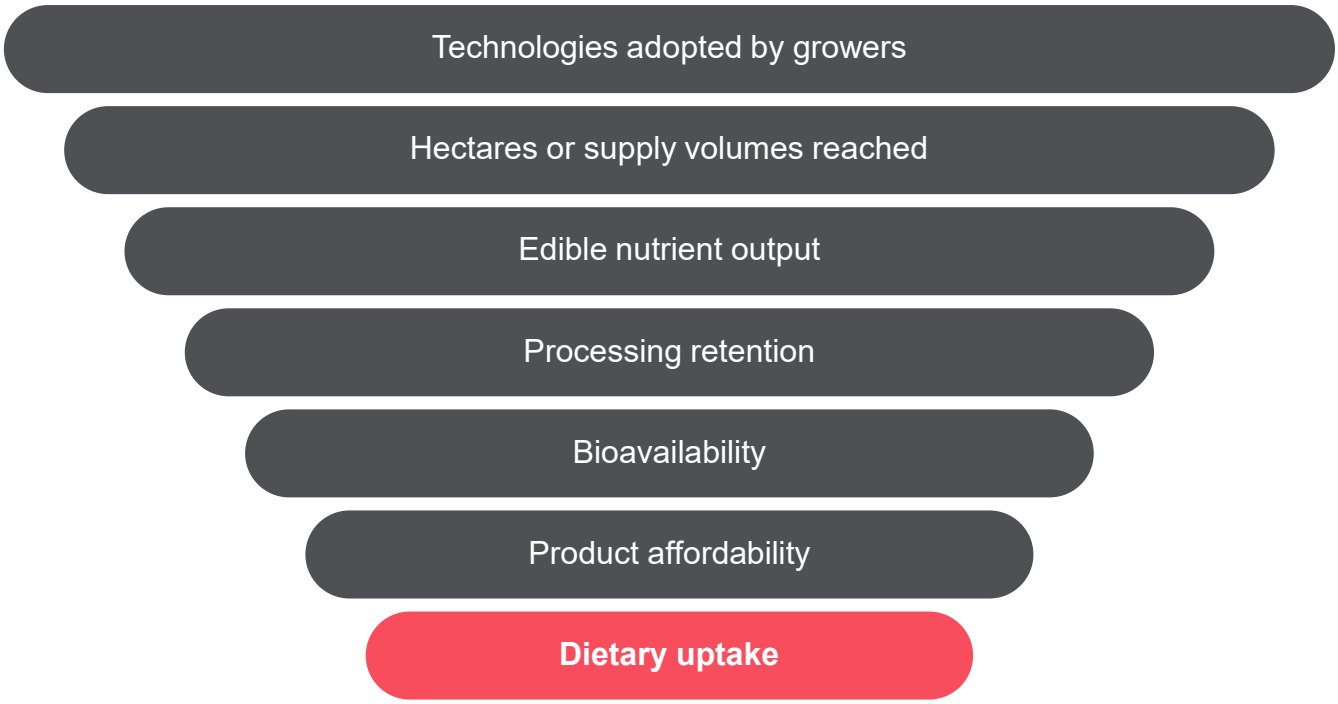


## The adoption gap is not one number

Claims that AgriTech has delivered “very low” nutrition impact need defined baselines and measurable evidence. Relevant indicators include the proportion of technologies adopted by growers, hectares or supply volumes reached, edible nutrient output, processing retention, bioavailability, product affordability and dietary uptake. The attrition from discovery to scaled consumer value is a useful conceptual funnel, but its widths should not be presented as measured industry rates without supporting data.

### INDICATORS RELEVANT TO THE ADOPTION GAP

Conceptual funnel. Widths are illustrative, not measured industry rates.






# Three hypotheses that challenge the industry's innovation model

HYPOTHESIS 1

## The bottleneck is not always discovery. It is the system designed to commercialize discovery.

Many technologies are optimized for the developer's nearest proof point: active stability, yield response or a trait concentration. Food companies need a different proof point: reliable specifications, safe processing, credible nutritional relevance and viable economics. The hypothesis is that better alignment of these endpoints could unlock more value than another round of undirected technology scouting.

**Leadership question:** Would a crop-to-food innovation brief, jointly owned by procurement, agronomy, R&D and nutrition, outperform conventional technology-led scouting?

**Counter-evidence:** if the key scientific mechanisms remain unproven or the available interventions do not solve a material constraint, commercialization redesign alone cannot close the gap.

HYPOTHESIS 2

## More crop output is not the same as more nutritional value.

An intervention can increase saleable tonnage while leaving micronutrient density unchanged or reducing it. Higher mineral concentration may not improve absorption. A food-safety precursor reduction may matter substantially without adding any nutrients. Nutritional performance therefore requires metrics matched to the claim: edible nutrient output, bioaccessibility, contaminant exposure, processing retention or affordable intake.

**Leadership question:** Should selected upstream innovation programmes be judged by safe, bioavailable nutrients delivered per affordable serving rather than yield or concentration alone?

**Counter-evidence:** such endpoints may be too costly or impractical for early screening and should be used only where the causal link and consumer relevance are defensible.

HYPOTHESIS 3

# The greatest beneficiary of agricultural innovation may not be the technology's direct buyer.

A low-asparagine wheat trait may create more value for a bakery reducing acrylamide exposure than for the grower cultivating the crop. A biofortified ingredient may matter to a nutrition brand while imposing segregation and identity-preservation costs upstream. Adoption can stall when those receiving the benefits are not the parties bearing the risks.

**Leadership question:** Could manufacturer-backed procurement contracts, shared pilot funding or outcome-linked premiums unlock innovation that conventional input-sales models cannot?

**Counter-evidence:** traceability costs, weak buyer willingness to pay or small verified benefits could undermine the model.

## WHO BEARS THE RISK, WHO CAPTURES THE VALUE

**Grower** → **Supplier** → **Manufacturer** → **Consumer**

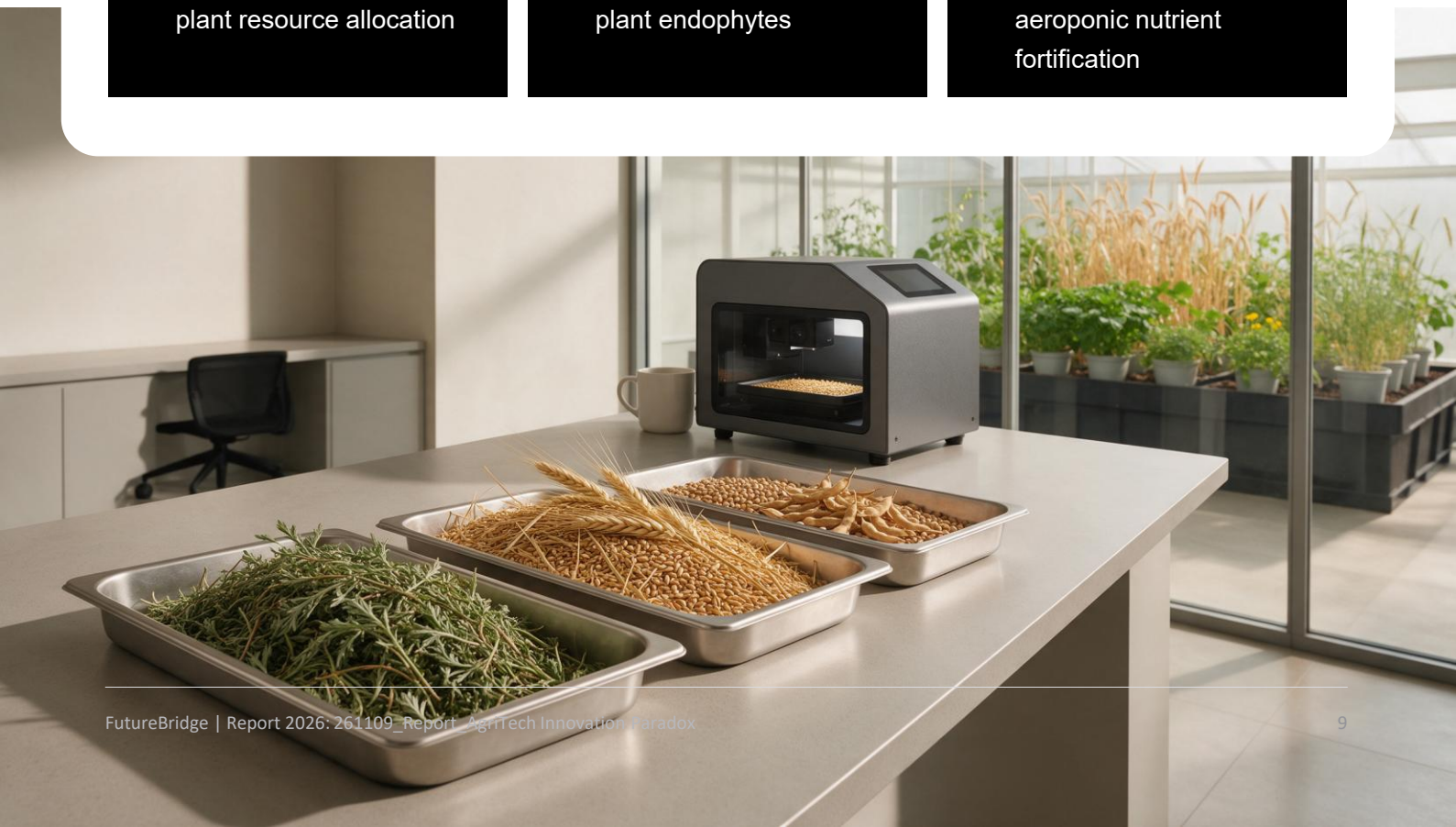


# Six cases, three industry challenges

The cases below are deliberately organized by the constraint they might solve, not by scientific discipline. Each is assessed against the same translation question:

> **What must be true for the technology to become a reliable, commercially practical food or nutrition outcome?**

| CHALLENGE A | CHALLENGE B | CHALLENGE C |
|---|---|---|
| **Making agricultural supply reliable without sacrificing quality** | **Designing nutritional value before food processing** | **Improving safety and Nutritional performance at the source** |
| Case 1. Protective encapsulation for biological inputs | Case 3. Multiplex crop engineering and biofortification | Case 5. Low-asparagine wheat |
| Case 2. T6P signalling and plant resource allocation | Case 4. B12-producing plant endophytes | Case 6. Precision aeroponic nutrient fortification |



## CHALLENGE A Making agricultural supply reliable without sacrificing quality

CASE 1

### Protective encapsulation for biological inputs

Encapsulation may protect selected biological actives from storage or environmental stress and change their release profile. Its value depends on the specific active, crop, dose and application setting, rather than the platform label alone.

**Why it matters for Food & Nutrition:** More dependable crop supply or reduced loss can support food availability, but neither higher nutrient density nor consumer health benefit follows automatically.

**Where adoption can fail:** The active performs in controlled settings but the encapsulated formulation cannot deliver reliable incremental value across commercial handling and weather conditions.

**What would constitute meaningful evidence:** Matched active-versus-encapsulated-active trials across seasons; shelf-life and application performance; saleable yield, quality specifications and cost per hectare.

**Industry implication:** Treat encapsulation as an enabling platform. Prioritize crop–active–geography combinations where performance variability has a measurable economic cost.

CASE 2

### T6P signalling and plant resource allocation

Trehalose-6-phosphate signalling approaches seek to influence how plants sense and allocate resources. Reported yield signals should be evaluated against independent replicated evidence, genotype and timing effects, and realistic grower practices.

**Why it matters for Food & Nutrition:** Yield gains matter to food systems only if saleable quality is maintained and there is a credible pathway to greater availability or affordability.

**Where adoption can fail:** A strong average yield claim masks site-level non-response, treatment complexity, or a dilution of composition that matters to food buyers.

**What would constitute meaningful evidence:** Multi-environment yield response and downside variance; grain protein and relevant micronutrients; nutrient output per hectare; incremental grower margin.

**Industry implication:** Screen crop and region fit before extrapolating headline performance. Pair agronomic diligence with grain-quality and downstream economics.

## CHALLENGE B Designing nutritional value before food processing

CASE 3

### Multiplex crop engineering and biofortification

Multiplex editing and advanced breeding can potentially modify several nutrient and contaminant-related pathways in a single crop. The ambition is not merely “more iron” or “more zinc,” but a stable and usable nutritional trait package.

**Why it matters for Food & Nutrition:** Food companies could procure raw materials designed for nutrient density, food safety and processing performance simultaneously.

**Where adoption can fail:** Nutrient gains compromise seed performance, flour functionality, traceability economics or market acceptance.

**What would constitute meaningful evidence:** Stable edible-grain composition across environments; mineral retention during milling and cooking; bioaccessibility or absorption where claims require it; yield, seed viability and regulatory access.

**Industry implication:** Prioritize crop–region–diet combinations where nutritional need, consumption volume and scalable seed adoption intersect.

CASE 4

### B12-producing plant endophytes

Selected plant-associated microorganisms may be able to produce B12 within edible tissues. Early experimental demonstrations make this scientifically distinctive, but it remains an early-stage proposition rather than an established food-fortification platform.

**Why it matters for Food & Nutrition:** A reliable plant-based B12 source could address a meaningful nutritional constraint, but detectable B12 is not equivalent to an absorbable, useful dietary dose.

**Where adoption can fail:** The system works in controlled cultivation but cannot consistently deliver safe, stable and meaningful amounts through a commercial food supply chain.

**What would constitute meaningful evidence:** Active B12 form and concentration per serving; reproducible colonization; microbial safety; retention after storage and preparation; bioavailability and regulatory pathway.

**Industry implication:** Use staged scientific partnerships and safety gates; avoid premature nutrition claims or population-level impact projections.

## CHALLENGE C Improving safety and nutritional performance at the source

CASE 5

### Low-asparagine wheat

Reducing free asparagine in wheat targets an upstream precursor associated with acrylamide formation during high-temperature processing. The existing manuscript references a 2026 study reporting substantial trait-level reductions in two edited lines; the original study and exact figures must be checked before publication.

**Why it matters for Food & Nutrition:** The primary opportunity is food safety rather than micronutrient enrichment. Actual finished-food acrylamide depends on recipes and processing conditions.

**Where adoption can fail:** The trait succeeds in grain but does not produce a sufficiently reliable or economically meaningful finished-food reduction, or fails procurement specifications.

**What would constitute meaningful evidence:** Trait stability, agronomic fitness, flour functionality, representative finished-food acrylamide results, segregation economics and market access.

**Industry implication:** Develop seed-to-mill-to-manufacturer validation consortia and identify product categories where precursor reduction has the strongest practical relevance.

CASE 6

### Precision aeroponic nutrient fortification

Controlled-environment systems can modify nutrient exposure during cultivation, potentially enriching edible shoots or greens. B12-fortified pea shoots provide a relevant emerging example, though product-scale nutrition and affordability remain separate questions.

**Why it matters for Food & Nutrition:** Nutrient-enriched fresh produce could be differentiated, but the economics of controlled-environment production may restrict the reach of affordable-nutrition applications.

**Where adoption can fail:** A technically enriched product cannot maintain dose consistency, retail stability or an acceptable cost structure outside a premium niche.

**What would constitute meaningful evidence:** Nutrient identity, batch consistency, retention, bioaccessibility, food safety, energy and labour inputs, shelf life and cost per delivered nutrient serving.

**Industry implication:** Separate near-term premium applications from scalable nutrition access; evaluate partnerships that reduce capital intensity.

# Four additional technologies on the horizon

## Low-phytate crop engineering

**UNIQUE TECHNICAL LEVER**

Reduce phytate or modify mineral chelation

**NUTRITION VALUE PROPOSITION**

Potentially greater iron/zinc bioavailability

**PRINCIPAL PRACTICALITY HURDLE**

**Seed viability, agronomic performance, human absorption proof**

## AI-assisted genomic selection

**UNIQUE TECHNICAL LEVER**

Combine genomic prediction with multi-environment phenotyping

**NUTRITION VALUE PROPOSITION**

Faster breeding of nutrient-rich resilient varieties

**PRINCIPAL PRACTICALITY HURDLE**

**Transferability, phenotyping quality, time to adoption**

## Photonic mushroom enrichment

**UNIQUE TECHNICAL LEVER**

Controlled UV exposure converts ergosterol to vitamin D2

**NUTRITION VALUE PROPOSITION**

Higher vitamin D2 in edible mushrooms

**PRINCIPAL PRACTICALITY HURDLE**

**Dose uniformity, cooking retention, economics and claims**

## Multi-trait nutrient and contaminant engineering

**UNIQUE TECHNICAL LEVER**

Jointly manage beneficial minerals and toxic-metal transport

**NUTRITION VALUE PROPOSITION**

Higher nutrient density with lower contaminant exposure

**PRINCIPAL PRACTICALITY HURDLE**

**Trait interactions, food quality and regulation**

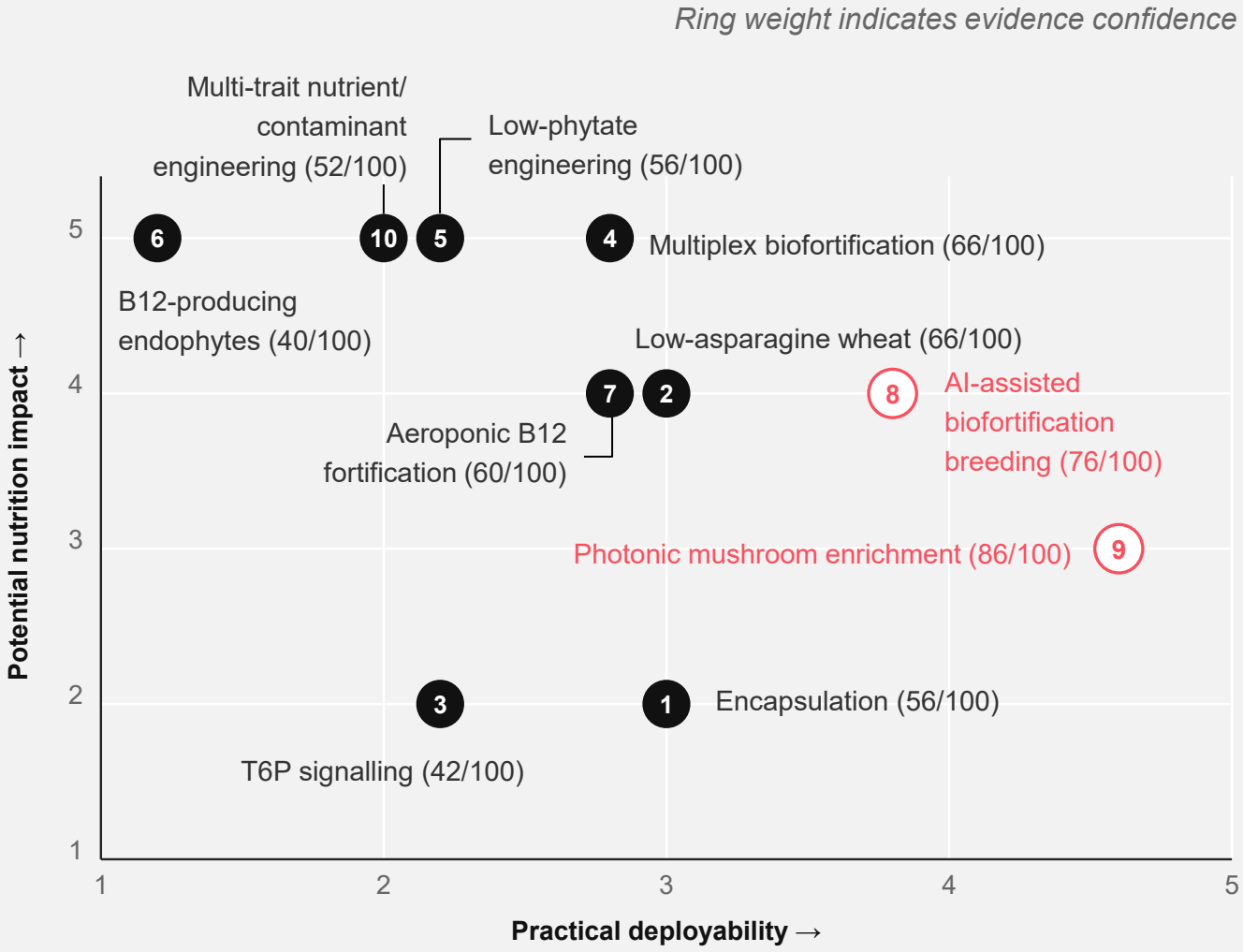
The purpose of this broader landscape is not to imply equal readiness. Photonic vitamin D2 enrichment in mushrooms has a comparatively direct route to food-product testing. AI-assisted breeding is an enabling capability rather than a nutrition outcome in itself. Low-phytate and multi-trait engineering are potentially consequential but face substantial validation and deployment questions.



# An indicative deployable product opportunity scorecard

Food & Nutrition leaders need to distinguish technologies that are exciting to monitor from those ready for a product pilot. The scorecard below is an illustrative consultant assessment—not a validated benchmark or independent vendor due diligence. Scores represent judgments on a 1–5 scale across technical robustness (20%), agronomic practicality (20%), food/quality relevance (20%), commercial value (20%), regulatory/sustainability fit (10%) and partner readiness (10%).

## OPPORTUNITY MATRIX




Positions derived from the indicative scorecard: horizontal = mean of Science, Field, Value, Reg. and Partner scores; vertical = Food score; ring weight = Science score. Accent rings mark totals of 76/100 and above.

07. THE NEXT LEADERSHIP MOVES

# The leadership playbook follows from the failure mechanisms

The recommendations below are responses to the system failures described at the beginning. They are not a generic innovation checklist.

| FAILURE EXPOSED | | LEADERSHIP SHIFT | |
|---|---|---|---|
| Technical efficacy fails in real conditions | → | **Require multi-environment and supply-chain validation before scale** | Replicated effect size, downside variance and operating fit |
| Agronomic success misses food needs | → | **Create joint agronomy–procurement–nutrition briefs** | Edible quality, processing retention and relevant food outcome |
| Benefits and costs accrue to different actors | → | **Design shared-risk partnerships and procurement incentives** | Risk-adjusted value by farmer, supplier and manufacturer |
| Regulatory or trust issues appear late | → | **Treat safety, market access and claims as early gates** | Documented compliance route and unresolved red flags |
| Nutrition impact is assumed | → | **Match proof level to the intended claim** | Composition, retention, bioaccessibility and/or human outcomes |
| Failures are not reused | → | **Build permissioned negative-evidence intelligence** | Reduced repeat failure and faster stop/redesign decisions |

## A better definition of readiness

Technology readiness should be necessary but insufficient. A promising crop-to-food innovation must also demonstrate adoption readiness:

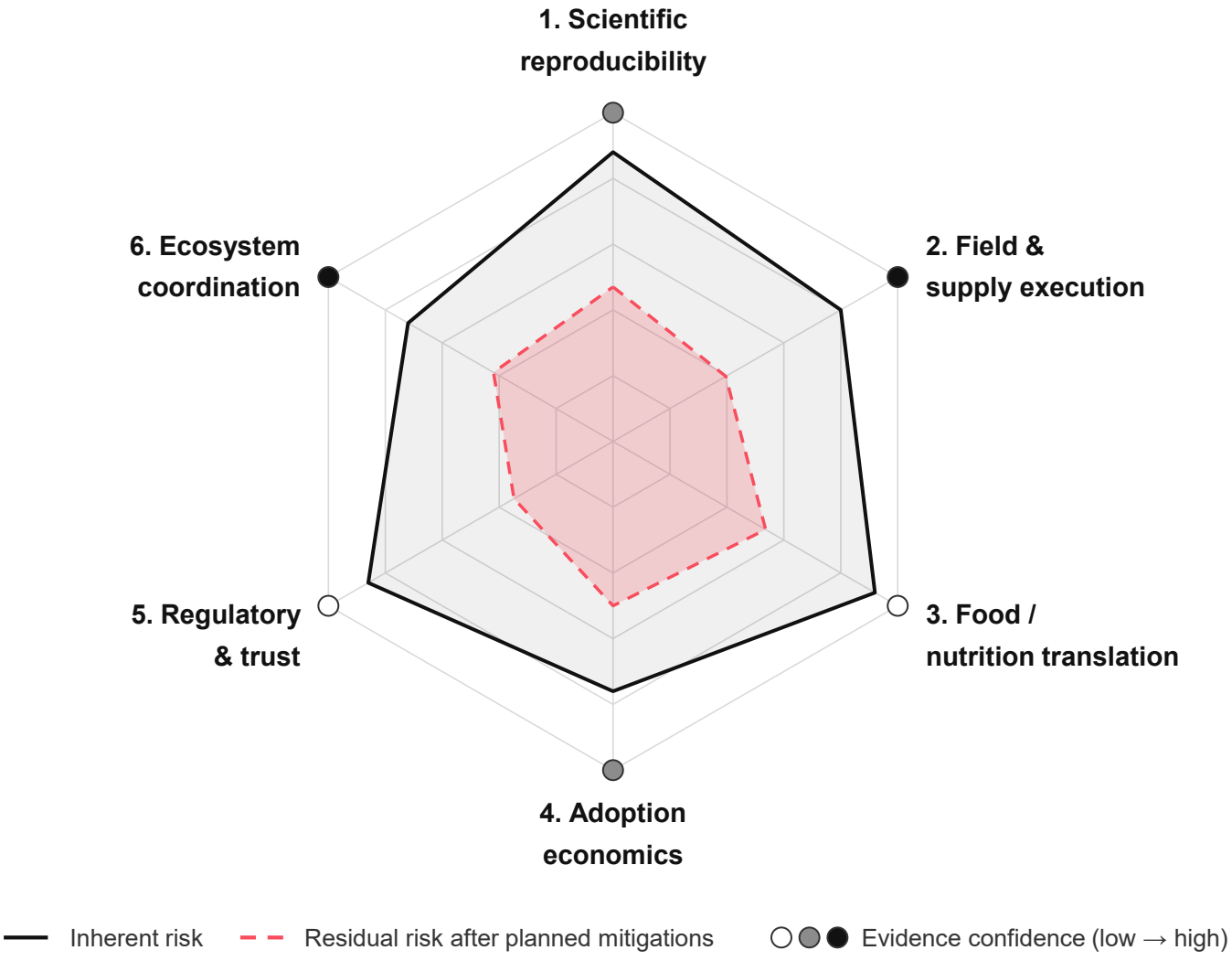
- **Practical application**
- **Consistent raw-material quality**
- **Buyer compatibility**
- **Defensible nutrition or safety endpoint**
- **Investable value-sharing model**
- **Feasible route to market**

MANAGEMENT TOOL

## The AgriTech Adoption Failure Radar

The six-dimensional opportunity scorecard helps decide which technologies deserve attention. A complementary Failure Radar should identify why a selected innovation may not travel from proof of concept to food-system impact. The radar is designed for food and nutrition leadership teams, not as a retrospective judgement on named technology providers.

For each risk, assign likelihood (L), impact (I) and detectability difficulty (D) on a 1–5 scale, where 5 is worst. Use the illustrative exposure index L × I × D (maximum 125) to triage risks, but never allow a low composite number to override a material safety or regulatory concern. Confidence in the evidence should be recorded separately. These scores are management assumptions to calibrate with pilot data.




Illustrative profile. Exposure index = L × I × D (maximum 125). These scores are management assumptions to calibrate with pilot data.

| RISK DOMAIN | TYPICAL FAILURE SIGNAL | LEAD OWNER | EARLY-WARNING INDICATOR |
|---|---|---|---|
| **Scientific reproducibility** | Performance depends on one site, variety or study | R&D / agronomy | Independent replication; effect-size variance |
| **Field & supply execution** | Treatment cannot withstand real handling or operating conditions | Sourcing / agronomy | Failure rate by site; storage and application deviation |
| **Food / nutrition translation** | Crop result does not persist through processing or reach a meaningful serving | Food science / nutrition | Retention, usable nutrient dose, food-safety endpoint |
| **Adoption economics** | Grower, supplier or processor bears cost without capturing benefit | Procurement / commercial | Net margin by actor; willingness to contract |
| **Regulatory & trust** | Market access, safety evidence or claims pathway is uncertain | Regulatory / quality | Unresolved mandatory requirements; claim substantiation |
| **Ecosystem coordination** | No partner owns traceability, validation or scale-up | Innovation / partnerships | Contracting delays; data ownership and pilot accountability |

ILLUSTRATIVE PRE-MORTEM

## What would make a promising launch fail?

| INNOVATION | HIGHEST-PRIORITY FAILURE QUESTION | RECOMMENDED MITIGATION EXPERIMENT |
|---|---|---|
| **Protective encapsulation** | Does the field benefit survive storage and application variability? | Matched-control trials across distribution and climate conditions |
| **T6P signalling** | Is the response repeatable without reducing buyer-required grain quality? | Multi-site yield and composition study |
| **Multiplex biofortification** | Do nutrients remain useful after processing, and can the crop enter procurement? | Field-to-finished-food retention and functionality trial |
| **B12 endophytes** | Is the B12 active, safe and consistently delivered in a realistic serving? | Form verification, microbial safety and stability gates |
| **Low-asparagine wheat** | Does the trait materially lower finished-food acrylamide? | Recipe-specific processing trials with functional controls |
| **Aeroponic fortification** | Can a nutrient-rich product reach customers at a viable cost? | Shelf-life, dose-consistency and cost-per-serving pilot |

### WHEN TO RUN THE RADAR




### Recommended management cadence:

Use the radar at opportunity selection, immediately before pilot approval, after the first replication milestone and at scale-up approval. At every review, record what changed, who owns mitigation and the next disconfirming test. This prevents a high-scoring technology from advancing simply because its technical narrative is compelling.

# Build adoption capability, not just a larger innovation funnel

**HORIZON 1**

## Validate food-level value where deployment is plausible

Food manufacturers and ingredient companies should identify near-term interventions that can be tested within existing supply and manufacturing systems. Priorities may include photonic nutrient enrichment, selected controlled-environment fortification applications and specific raw-material quality improvements. Test the edible product, not merely the enabling process.

**HORIZON 2**

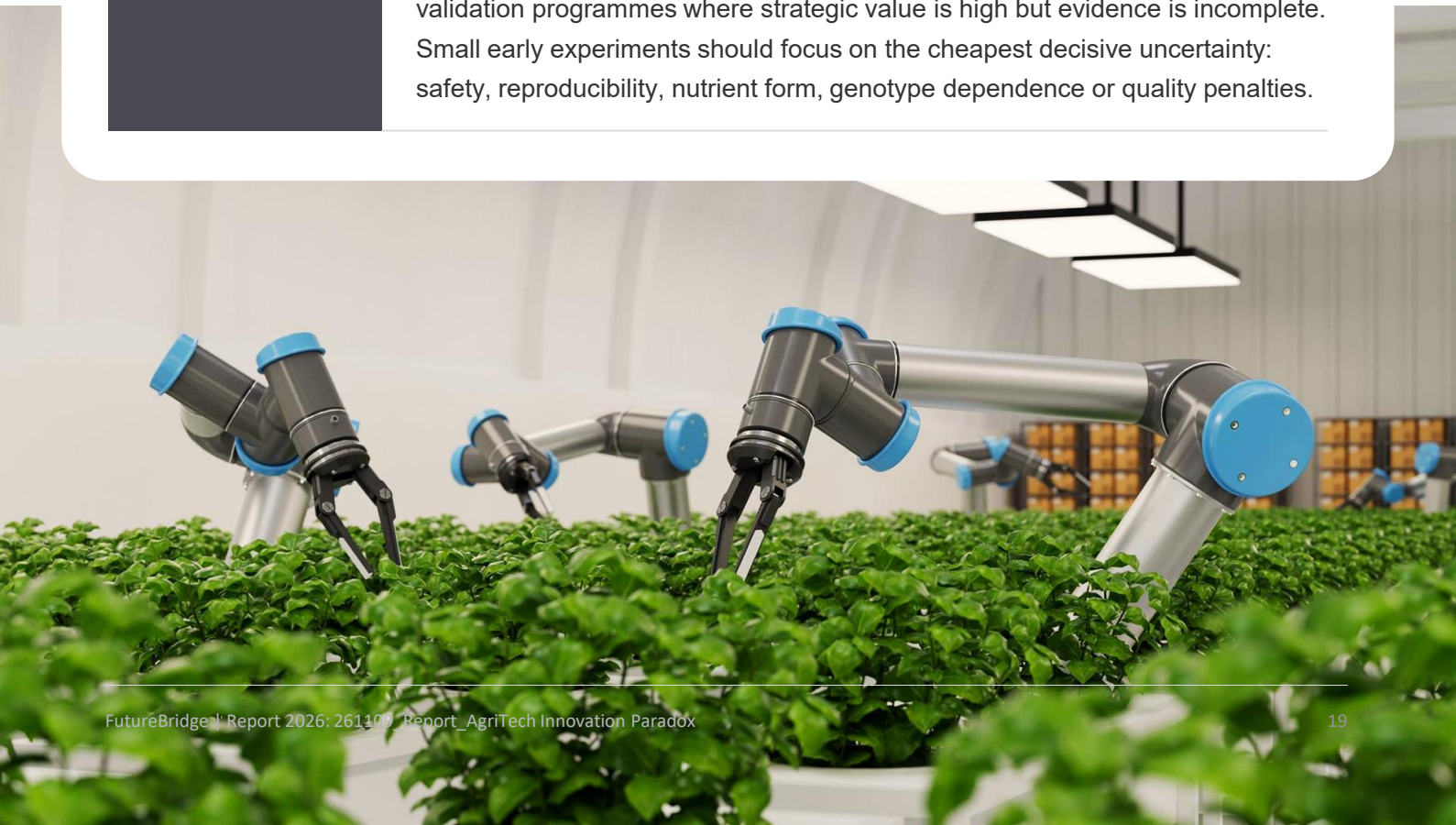
## Co-develop crop-to-product pathways

For low-asparagine wheat, multiplex biofortification, AI-enabled breeding and targeted delivery systems, build partnerships among developers, growers, ingredient suppliers, processors and food brands. Agree upfront on agronomic controls, processing specifications, nutritional or safety endpoints, traceability and who funds the trial. Pilot success should trigger a procurement or commercialization decision, not another disconnected demonstration.

**HORIZON 3**

## Preserve scientific options with explicit gates

B12-producing endophytes, low-phytate engineering, multi-trait nutrient/contaminant engineering and T6P-based approaches may justify targeted validation programmes where strategic value is high but evidence is incomplete. Small early experiments should focus on the cheapest decisive uncertainty: safety, reproducibility, nutrient form, genotype dependence or quality penalties.



## Five practical actions for industry leadership

1. **Identify** the top three crop-to-product constraints where improved supply, safety or nutritional value would materially change category economics.
2. **Set a shared outcome metric** for each opportunity, with distinct agricultural, food-product and consumer-relevance endpoints.
3. **Require** an adoption pre-mortem before funding pilots: what could prevent farmer use, procurement acceptance, regulatory access or nutritional relevance?
4. **Create cross-functional ownership** across agricultural sourcing, R&D, nutrition, quality, regulatory and commercial teams.
5. **Capture negative evidence** and redesign decisions as reusable intelligence, not as discarded project files.



INDUSTRY IMPLEMENTATION ROADMAP

## From adoption intent to scaled nutritional value

The three horizons describe portfolio choices; the roadmap below specifies how a Food & Nutrition organization can operationalize them. Timings are indicative, may overlap and should be adjusted to the evidence maturity and regulatory pathway of each technology.

| 0–3 months<br>**Diagnose** | 3–6 months<br>**Design** | 6–12 months<br>**Validate** | 12–24 months<br>**Scale selectively** |
|---|---|---|---|
| **LEADERSHIP DECISION AND ACTIVITY**<br>Select 2–3 crop-to-product constraints; establish baselines; apply opportunity scorecard and Failure Radar; define nutrition/safety endpoints | **LEADERSHIP DECISION AND ACTIVITY**<br>Choose partners; test adoption economics; agree matched controls, data rights, traceability and product-level measurement | **LEADERSHIP DECISION AND ACTIVITY**<br>Run agronomic and food-processing tests; measure stability, retention, safety, unit economics and farmer/processor adoption barriers | **LEADERSHIP DECISION AND ACTIVITY**<br>Contract qualified suppliers; build specifications and quality systems; monitor cost per usable serving and realized outcomes |
| **CROSS-FUNCTIONAL OWNERSHIP**<br>Strategy, sourcing, nutrition, R&D | **CROSS-FUNCTIONAL OWNERSHIP**<br>R&D, procurement, quality, regulatory, partners | **CROSS-FUNCTIONAL OWNERSHIP**<br>Agronomy, food science, nutrition, commercial | **CROSS-FUNCTIONAL OWNERSHIP**<br>Operations, sourcing, category leadership |
| **TANGIBLE OUTPUT / GATE**<br>**Prioritized opportunity briefs and explicit stop/go criteria** | **TANGIBLE OUTPUT / GATE**<br>**Pilot charters with funded owners and risk mitigation plans** | **TANGIBLE OUTPUT / GATE**<br>**Replicated evidence and independent gate review** | **TANGIBLE OUTPUT / GATE**<br>**Scale, narrow, license, partner or stop decision** |

## Three management gates that should govern the roadmap

**Gate 1**
Is the agricultural mechanism repeatable under conditions that matter?

**Gate 2**
Does the effect survive the field-to-food journey and improve a clearly defined safety, quality or nutrition outcome?

**Gate 3**
Can the stakeholders who must adopt the intervention do so at acceptable risk and economics?

⚠ **No single weighted score should substitute for these gates.**

## Suggested leadership dashboard

INDICATOR | WHAT IT ANSWERS

### Technology-to-pilot conversion

Are we selecting actionable opportunities rather than accumulating signals?

### Pilot-to-procurement conversion

Are validated technologies entering actual supply and manufacturing systems?

### Risk closure by domain

Are the causes of launch failure being resolved or merely deferred?

### Food-level outcome per unit

What safety, quality or nutrient benefit is retained in edible products?

### Cost per usable or bio-available nutrient serving

Does nutritional ambition have a credible affordability pathway?

### Value captured across stakeholders

Are incentives sufficient for farmers, suppliers and manufacturers to participate?

Industry leadership should review this dashboard alongside conventional R&D milestones. The intended outcome is not a larger innovation funnel but a higher proportion of credible upstream technologies reaching food products with verifiable value.

## What the next investment committee should ask

- Which part of the translation chain remains unproven?
- Who would have to change behaviour to adopt the technology?
- Is the claimed nutrition benefit actually measured at the food or dietary level?
- Which stakeholder captures the value?
- And what result would make us stop?



09. CLOSING PERSPECTIVE

# What if adoption is the next breakthrough?

The food industry does not need to choose between scientific ambition and commercial discipline. It needs a stronger connection between them. Gene editing, biological delivery, plant signalling and precision cultivation create real possibilities, but possibilities become strategic value only when they survive the constraints of fields, factories, markets and diets.

For Food & Nutrition leaders, the opportunity is to move from being downstream buyers of agricultural output to active shapers of the innovations that determine raw-material quality, food safety and nutritional value. That requires earlier collaboration, better evidence, aligned incentives and the willingness to stop or redesign technologies that cannot cross the adoption gap.

## What if the greatest untapped opportunity in agricultural innovation is not what science has yet to discover, but what the Food & Nutrition industry has yet to adopt?

### Editorial evidence and interpretation notes

This report is an industry-facing FutureBridge perspective. The six case studies are technology hypotheses and translation analyses, not vendor endorsements. Launch-failure examples are illustrative scenarios, not documented accusations. The 10-technology scorecard and plotted positioning are consultant judgments, not observed performance data. Before publication, verify the referenced 2026 low-asparagine wheat paper and its reported percentages, primary studies on B12 endophytes and aeroponic fortification, T6P trial evidence, company-specific capabilities and any regulatory statements. Where causal nutritional benefits are not demonstrated, the article deliberately uses conditional language.

MEET THE

# Author



## Rima Mittra

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With 15+ years in Food & Nutrition, Rima translates advances in food science, shifting nutrition needs, and market trends into differentiated innovation and growth strategies for industry leaders.

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ABOUT

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