



INSPIRE REPORT

The Lux Policy Compass for *Agrifood & Health Companies*



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Executive Summary

Policy is becoming a defining force in how innovation translates into scale across agrifood and health. As governments act on nutrition, resilience, and bioindustrial growth, regulation is shaping the conditions under which products can be developed, scaled, and brought to market. This shift places policy at the center of strategic decision-making, influencing not just compliance but the direction of innovation itself.

Our analysis shows that system-level policies are increasingly determining which business models can scale. Regulations like EUDR, PPWR, and EU NGT* are influencing land use, input availability, packaging systems, and production capacity. These policies operate upstream and redefine market access conditions, meaning that companies can face growth barriers even with strong product propositions if they are misaligned with sourcing or material requirements.

Second, the policy landscape is bifurcating between Disruptive and Manageable quadrants. While a smaller set of disruptive policies is reshaping value chains, a broader group — such as nutrition labeling, HFSS restrictions, FFC** frameworks, and PFAS controls — is steadily raising baseline expectations. These policies do not transform systems independently, but their cumulative effect is to narrow acceptable practices and increase the cost of lagging behind regulatory norms.

Third, innovation pathways are increasingly guided by policy signals rather than market demand alone. Bioeconomy strategies in regions like the EU, India, Korea, and China are directing capital and infrastructure toward specific technologies, including fermentation and advanced breeding. At the same time, evolving requirements around health, sustainability, and materials are tightening constraints on traditional approaches. As a result, time to scale and portfolio economics are increasingly tied to regulatory alignment.

For companies, the challenge is no longer whether policy will influence growth but how to respond with the right level of strategic intent. The Lux Policy Compass provides a framework to distinguish between policies that require incremental adaptation and those that demand structural change, while highlighting the capabilities needed to remain competitive.

Agrifood and health companies that proactively build capabilities in areas like regulatory foresight and science-based innovation will be better positioned to mitigate risk and capture value from policy-driven shifts. As regulation increasingly shapes market conditions, aligning investment with emerging policy direction will be critical to remain competitive. Companies that assume continuity risk misaligned innovation pipelines, delayed market access, and reduced relevance in a rapidly evolving landscape.



A Tool for Navigating an Era of Regulatory Transformation

Lux Research created The Lux Policy Compass for Agrifood and Health (Figure 1) to help innovation teams systematically bring regulatory and health-policy considerations into strategic decision-making.

The Compass positions recent, emerging, and proposed policies as evolving, disruptive, manageable, or minimal based on their overall score for business impact (vertical axis) and policy likelihood (horizontal axis). Business impact reflects the magnitude of change across the agrifood and health value chain, from ingredient sourcing and formulation to manufacturing, labeling, and market access, while policy likelihood assesses the probability of adoption and enforcement across major markets. Each policy's position on the Compass signals whether it requires monitoring, structured compliance, proactive scenario planning, or strategic repositioning. The framework is designed not to catalog regulation but to guide leadership attention and investment toward the most critical areas.

The Lux Policy Compass helps innovation teams connect near-term regulatory signals with short- and long-term strategic decisions. It identifies specific policies that create immediate risks or opportunities, enabling teams to prioritize where deeper analysis is needed and where policy should be integrated into sourcing, product, and portfolio strategies. At the same time, it highlights broader policy trajectories and cross-market patterns that inform higher-level decisions, including where to locate production, how to design compliant product portfolios, and which capabilities — such as ingredient validation or alternative sourcing — should be developed to remain competitive.



Figure 1. The quadrants in the Lux Policy Compass for Agrifood and Health companies indicate actions that decision-makers should consider regarding the individual policies and the policy area.





How The Lux Policy Compass for Agrifood and Health Companies Is Scored

Each policy receives a score from 1 to 5 for policy likelihood and business. These scores determine a policy's position on the Compass, as detailed below.



Policy Likelihood

The policy likelihood score assesses the probability that relevant authorities — such as food safety regulators (e.g., U.S. FDA, European Food Safety Authority) and national health ministries — will adopt and enforce a given policy or regulation.

This measure is a single score from 1 (least likely) to 5 (most likely) and evaluates considerations like:

- The policy's current legislative or regulatory status (e.g., draft guidance, consultation, or enacted)
- Alignment with national priorities across food safety, public health, nutrition, and sustainability
- Political stability, trade considerations, and market signals (e.g., industry readiness, consumer pressure)
- Strength of enforcement mechanisms, implementation timelines, and regulatory precedents



Business Impact

The business impact score represents how a policy affects six major aspects of agrifood value chains and the industrial product/service life cycle:

- Inputs
- Processes
- Products
- Partners
- Demand
- Supply-Side Impact

For each policy, the six aspects are scored from 1 (least impactful) to 5 (most impactful).

To emphasize the significance of more radical policy changes, we used customized scoring for the overall business impact score rather than a simple average. Policies that cause major changes in one or two areas are more important for leaders to pay attention to than ones that cause minor changes across all six areas.

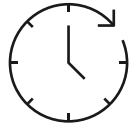
Building The Lux Policy Compass

Our analysis includes a broad range of policy types — national guidelines (often termed agenda, plan, guidance, or program), policies, regulations, and laws. The policies in this analysis were selected for their relevance to core industrial sectors, timeliness, and regional scope.



Relevance

The policies must have impacts that are relevant to agrifood clients. Policies must have a score of at least 3 on at least two of the six business impact measures.



Timeliness

The analysis focuses on emerging policies expected to shape agrifood markets over the coming decade.

Policies in scope include:

- Newly enacted regulations in the past three years
- Ongoing reform programs

Policies predating 2023 are included only if revisions or enforcement changes significantly affect the current landscape.



Regional Scope

We limited the scope of our analysis to policies from North America, South America, Europe, and the Asia-Pacific region. Our analysis includes 30 policies, regulations, and national guidance directives for Agrifood and Health. This report is by no means a comprehensive study, but it serves as a reproducible framework to illustrate policy impacts that support business decisions in a given industry.

Policy Shapes Innovation Across Agrifood Sectors

This report groups the most influential Agrifood policies into the four priorities within the Agrifood and Health service at Lux Research, as outlined in the report [“The Next Era of Agrifood and Health.”](#) These are: Enhanced Health and Reduced Harm, Resilience Building, Growth Through the Bioeconomy, and Impactful Packaging.



Enhanced Health & Reduced Harm

Governance of nutritional quality, metabolic health risk factors, and ingredient safety across packaged foods and beverages, including nutrient-profile criteria, front-of-pack labeling rules, restrictions on harmful additives or high-sugar products, oversight of functional and health claims, evidence requirements for bioactive ingredients, and reformulation pressures.



Resilience Building

Policies that affect the stability and adaptability of agricultural and ingredient supply systems, whether by strengthening resilience or by exposing vulnerabilities. This includes deforestation-free sourcing requirements, soil-health and regenerative-farming standards, water and pesticide management rules, climate-risk mitigation measures, and national programs that influence crop mix, and long-term food security within domestic markets and global markets.



Growth Through the Bioeconomy

Expansion of biobased production pathways through national strategies that promote biomanufacturing capacity, encourage the use of sustainable feedstocks, streamline approval of genetic innovations, and create market pull for fermentation-derived ingredients and low-carbon alternatives.



Impactful Packaging

Recyclability and reuse standards regulate chemical substances in food-contact materials, establish extended producer responsibility schemes, require recycled content, and impact how companies design, source, and recover packaging across global markets.

Enhanced Health & Reduced Harm

Enhanced health and reduced harm is shifting from a product positioning strategy to a policy-shaped expectation across food and beverage categories. Governments are tightening oversight of ingredients, health claims, and risk-associated components, creating moderate-to-high business impact and placing many policies in the Manageable to Disruptive quadrants (Figure 2). Front-of-pack labeling in Europe, U.S. dye restrictions and additive review, sugar reduction policies, Japan's FFC, and HFSS regimes in the U.K. and India all point in the same direction: "better for you" products must now have substantiated claims, be transparently labeled, and be reformulated through evidence-driven capabilities rather than discretionary innovation.

Opportunities

The evolving health policy landscape creates opportunities for companies to differentiate through evidence-backed health and risk-reduction claims. Ingredient and food companies that proactively align with labeling frameworks, nutrient thresholds, and ingredient safety expectations can strengthen market access and reduce the risk of costly late-stage reformulation. Policies like front-of-pack labeling, HFSS classifications, and functional claim frameworks like FFC provide clearer pathways to position products around measurable health outcomes. Companies that integrate regulatory foresight into R&D and portfolio strategy can validate functional benefits and unlock premium positioning in increasingly health-driven categories.

Risks

Risks in this priority stem from tightening and often fragmented regulatory expectations. Diverging definitions of "healthy" across regions can complicate portfolio standardization and increase compliance costs. Increased scrutiny on ingredients and claims raises the risk of reformulation setbacks, product withdrawals, or reputational damage if products fail to meet evolving standards. Additionally, reliance on emerging health frameworks will require significant investment in scientific substantiation, with uncertain returns. Companies that react slowly to policy shifts may face restricted market access or lose competitiveness as healthier benchmarks become the norm.



Food and beverage companies should not view health policy as a compliance update, but as an early product design filter. With definitions of health and harm shifting across regions, companies need to identify which ingredients, claims, and categories are most exposed before reformulation becomes urgent. Tightening labeling rules, ingredient scrutiny, and health thresholds mean reformulation must be paired with strong scientific substantiation and agile portfolio management. Enhanced health is shifting from a positioning lever to a policy-shaped requirement, where credibility and compliance will determine scale.

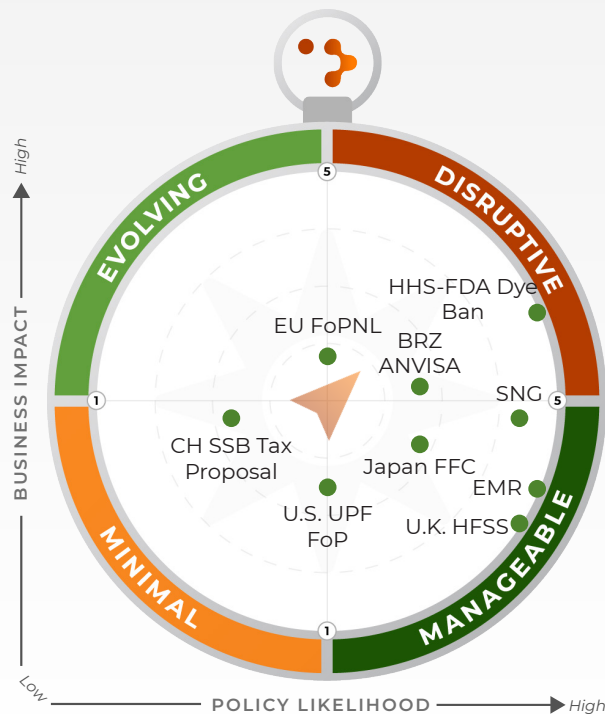
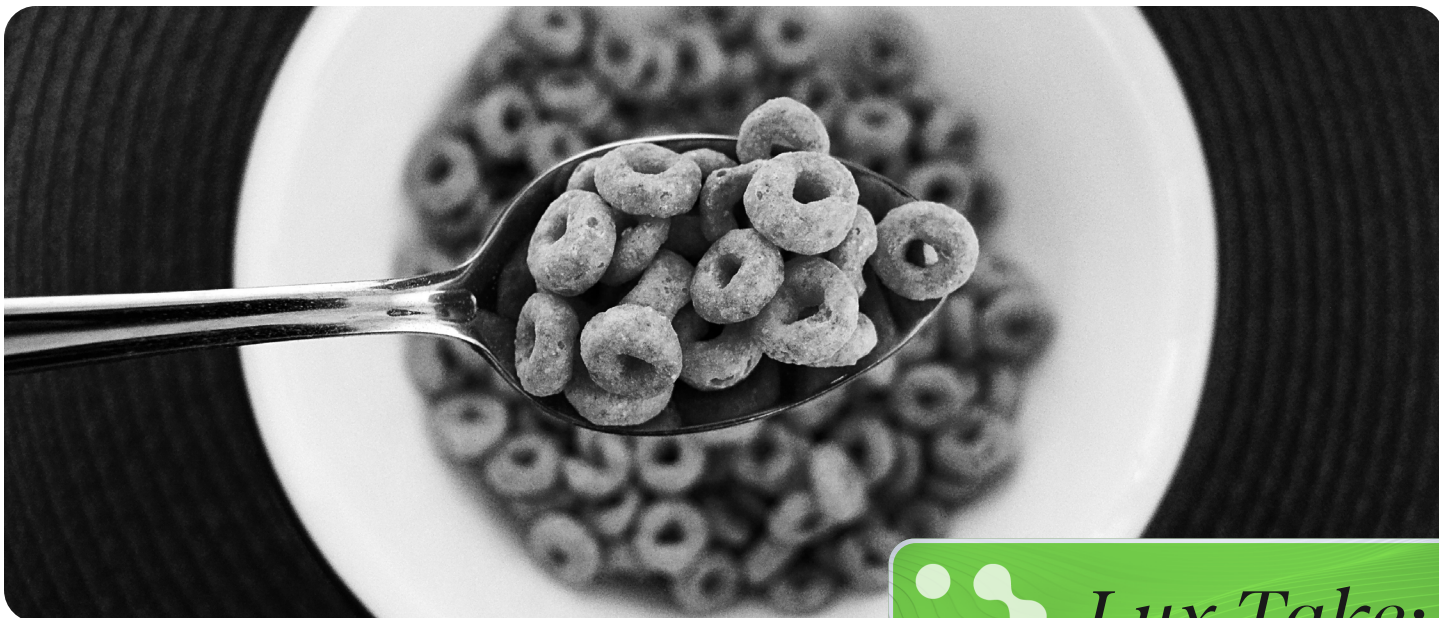


Figure 2: Lux Policy Compass for Enhanced Health and Reduced Harm related to Agrifood & Health sectors.

POLICY	POLICY LIKELIHOOD	BUSINESS IMPACT						OVERALL SCORE
		Input	Process	Product	Partners	Demand	Supply-Side Impact	
Harmonised Front-of-Pack Nutrition Labeling Regulation (EU FoPNL)	3	3	3	4	3	4	3	3.3
HHS*-FDA Phaseout of petroleum-based synthetic food dyes in the U.S. (HHS-FDA Dye Ban)	5	4	3	4	3	3	4	3.7
2025 reforms to Foods with Function Claims for supplements & functional foods (Japan, FFC)	4	3	2	3	3	3	3	2.3
Singapore Nutri-Grade labeling (SNG)	5	3	3	3	2	4	3	2.7
High fat, sugar, and salt regulation (U.K., HFSS)	5	2	2	3	2	4	2	1.7
China sugar-sweetened beverage consumption tax (CH SSB Tax Proposal)	2	3	1	4	2	4	4	2.7
Brazil ANVISA Ultraprocessed Food (UPF) Front-of-Pack Warning Label Proposal (2025+2026) (BRZ ANVISA)	4	3	3	4	3	3	3	3
Ultraprocessed Foods Front-of-Pack Labeling bill (U.S. UPF FoP)	3	2	2	3	2	4	3	2
EU Microplastics Regulation (EMR)	5	3	3	3	3	2	2	2



Lux Take:

Enhanced Health & Reduced Harm

POLICY HIGHLIGHT:

HSS phaseout of petroleum-based food dyes signals rising ingredient scrutiny

The 2025 announcement by HHS and FDA to remove petroleum-based synthetic dyes from the U.S. food supply is one of the most consequential ingredient-policy shifts in recent years. For decades, synthetic colorants were managed under a predictable regulatory framework that focused on toxicological thresholds and manufacturing controls. The new phaseout reflects a broader public-health agenda driven by cumulative exposure effects and mounting political attention to harmful ingredients.

The transition requires substantial reformulation across product categories that rely heavily on bright and stable color expression. Confectionery, beverages, ready-to-eat snacks, dairy analogues, and baked goods are expected to face the most significant technical hurdles. Natural pigments behave differently under heat, pH shifts, and light, and these environments can introduce flavor, odor, or stability constraints that manufacturers must solve through new processing conditions or ingredient systems. The FDA has indicated that it will expedite the review of new natural and fermentation-derived alternatives, which could create opportunities for suppliers with robust color science capabilities or advanced biomanufacturing platforms.

As this policy develops, two areas require close attention. The first is whether the phaseout drives a broader reassessment of additive categories beyond colorants, particularly those prevalent in products consumed by children. The second is the competitive impact on categories like confectionery, beverages, dairy alternatives, and baked goods, where bright and stable colors are central to product identity. In those categories, companies that secure reformulation support and pigment supply early are more likely to maintain retailer confidence, while slower players may face shelf resets, cost pressure, and supply bottlenecks. The broader significance of the phaseout is that it moves U.S. food policy beyond a narrow additive review and toward a more assertive stance on ingredient transparency and product composition.

Food and beverage manufacturers and ingredient suppliers should treat the HHS-FDA phaseout of petroleum-based dyes as a targeted reformulation risk, not a threat to all products. Companies should prioritize highest-risk categories — such as confectionery, snacks, and kids' foods — first, especially when color is tied to brand identity or consumer recognition. This does not mean avoiding novel ingredients, but clients should avoid overcommitting to unproven startup-derived color solutions until cost, supply, performance, and regulatory acceptance are clearer. In the near term, proven natural pigments and extract-based colors offer a lower-risk bridge.



Resilience Building

Resilience building is moving to the forefront of agrifood policy, which points to the Manageable quadrant, as governments respond to supply-chain volatility driven by weather extremes, geopolitical conflict, and pressure on land, water, and inputs. Regulatory activity now combines incentive-led frameworks with stricter compliance requirements, embedding resilience into food-system operations. Policies like the EU Deforestation Regulation (Figure 3) are shaping expectations for traceability, land use, and domestic production capacity. While Europe emphasizes strict sourcing and environmental standards, the U.S. focuses on producer support and risk mitigation, and APAC prioritizes food security through agricultural technology, infrastructure, and local production.

Opportunities

Policy momentum around resilience creates openings to build credible beachheads in traceability, supplier visibility, and region-specific sourcing strategies. The biggest opportunities are in ingredient chains already under pressure — cocoa, coffee, palm, soy, and other crop-linked inputs where traceability and land-use documentation are becoming commercially important. Companies that invest selectively in supplier data, verification systems, and policy-aligned sourcing partnerships can reduce exposure to shocks without overextending into broad local-sourcing mandates that add complexity without improving resilience.

Risks

Risks arise from increasing complexity and variability in regional ingredient requirements. Policies like EUDR introduce stringent traceability obligations that can disrupt existing supply chains and raise compliance costs, particularly for companies sourcing from fragmented supplier networks. Differences in implementation timelines, documentation requirements, and enforcement standards across regions may limit scalability. Emerging sustainable practices can also introduce supply uncertainty or higher input costs in the near term, especially where alternative inputs, certified suppliers, or verification systems remain limited. Companies that fail to adapt may face restricted market access, supplier disengagement, or reputational risks linked to environmental noncompliance.



Policies targeting regional resilience are tightening around sourcing, land use, and traceability, which will force food and beverage players to rethink how and where they secure inputs. Building flexibility through diversified sourcing, closer supplier integration, and alignment with policy-backed initiatives will be critical. Those that proactively adapt will be better positioned to manage volatility and maintain continuity, while others may face increasing disruptions, higher compliance burdens, and constrained access to key markets.

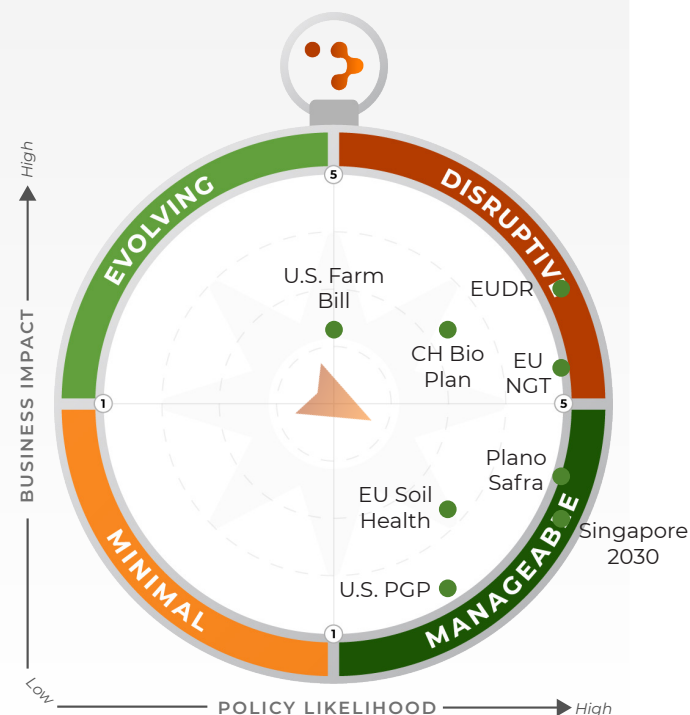


Figure 3: Lux Policy Compass for Resilience Building related to the Agrifood & Health sectors.

POLICY	POLICY LIKELIHOOD	BUSINESS IMPACT						OVERALL SCORE
		Input	Process	Product	Partners	Demand	Supply-Side Impact	
Updated national food-resilience approach replacing "30-by-30" (Singapore 2030)	5	3	2	2	4	2	3	2
European Deforestation Regulation (EUDR)	5	5	3	3	5	2	4	4
EU New Genomic Techniques (EU NGT)	5	4	3	4	3	3	3	3.3
China National Plan for Biomanufacturing (Part of 15th Five-Year Plan) (CH Bio Plan)	4	4	4	3	3	3	4	3.7
EU Directive on Soil Monitoring and Resilience (EU Soil Health)	4	3	3	2	3	2	3	2
2025 Farm, Food, and National Security Act (U.S. Farm Bill)	3	3	3	3	4	3	5	3.7
Pesticide Permitting-2026 Pesticide General Permit (U.S. PGP)	4	4	3	2	2	2	2	1.3
Plano Safra	5	3	2	2	3	2	5	2.3



Resilience Building

POLICY HIGHLIGHT:

EU NGT set to recalibrate crop trait improvement

The EU's NGT framework is emerging as a pivotal policy shaping the future of agricultural innovation by redefining how gene-edited crops are regulated within one of the world's largest and strictest markets. By distinguishing certain NGTs from conventional GMOs and creating a more streamlined approval pathway, the framework directly addresses a long-standing barrier to crop innovation in Europe. The relevance to resilience is concrete: European producers have had limited regulatory room to deploy traits that improve disease resistance, climate tolerance, and input efficiency in regionally important crops.

The immediate impact is on R&D and commercialization strategies. Companies developing gene-edited crops must align with new classification systems, transparency requirements, and labeling rules while adapting pipelines to meet regulatory expectations. But the deeper implication is strategic. The framework will create a more favorable environment for innovation within Europe, potentially narrowing the gap with nations like the U.S., Japan, and China. At the same time, differing global standards will continue to lead to parallel innovation tracks, where companies tailor product development to region-specific regulatory pathways.

For Europe-based agrifood players, this shift requires new capabilities. Innovation teams must integrate regulatory foresight into breeding programs, while supply chain and commercialization functions prepare for differentiated market acceptance and traceability needs. Partnerships with research centers and technology providers focused on trait discovery will also become more critical to accelerate development. The framework may further influence retailer and consumer expectations, particularly around transparency and labeling.

Beyond Europe, the policy is likely to shape global regulatory dynamics. Countries exporting to the EU may need to adjust breeding practices or establish segregation systems to maintain access. Meanwhile, other regions may adopt similar risk-based approaches, gradually shifting the global baseline for gene-editing regulation.



Lux Take:

Seed developers, commodity companies, and food manufacturers should align R&D pipelines early with the evolving classification and transparency requirements to avoid delays in commercialization. While the policy creates new opportunities to deploy gene-edited crops for yield and resilience, uncertainty around labeling and consumer acceptance remains. Companies should advance NGT programs where the trait advantage is strong and the route to scaled development is credible, while keeping conventional breeding as a baseline.



Growth Through the Bioeconomy

The bioeconomy is becoming a central pillar of industrial and agricultural policy, with governments positioning it as a pathway to growth, sustainability, and supply independence. Policy activity spans the Manageable to Disruptive range (Figure 6), as funding programs, national strategies, and regulatory enablers accelerate commercialization of biobased products. Initiatives like the EU Bioeconomy Strategy and China’s bioeconomy plan are driving investment in fermentation, alternative feedstocks, and circular production. As Europe, China, and South Korea scale support, the bioeconomy is shifting into a structured platform for food ingredient and process innovation.

Opportunities

Policy support for the bioeconomy creates opportunities to scale biobased solutions and access funding, infrastructure, and partnerships. For agrifood and health clients, the most relevant openings are in precision-fermented ingredients, enzymes, functional lipids, specialty proteins, and other inputs where pilot capacity and scale-up infrastructure remain bottlenecks. Companies that align with national priorities can benefit from incentives, demonstration support, and public-private ecosystems that shorten the path from technical validation to commercial production.

Risks

The rapid pace of bioeconomy policy momentum introduces uncertainty. Subsidy-driven markets, like APAC’s, can lead to capacity imbalances, as seen in regions where fermentation infrastructure is expanding faster than demand. Divergent approval pathways for fermentation-derived ingredients — such as differing EU and U.S. stances on novel foods — fragment market access. Feedstock incentives can distort pricing and availability across food, feed, and materials sectors. Companies reliant on public funding face political risk if priorities shift, while scaling biomanufacturing remains constrained by infrastructure, regulation, and supply-chain competition.



Agrifood companies should track policy-backed pathways in fermentation, alternative feedstocks, and circular production to identify where scale-up support is strongest. Bioeconomy policies are moving biobased production to an industrial strategy, shaping where capacity, capital, and market access concentrate. Companies that align innovation pipelines with regional priorities will be better positioned to secure partnerships, reduce supply exposure, and accelerate commercialization. Those that treat the bioeconomy as niche R&D risk falling behind as policy support determines which technologies scale.

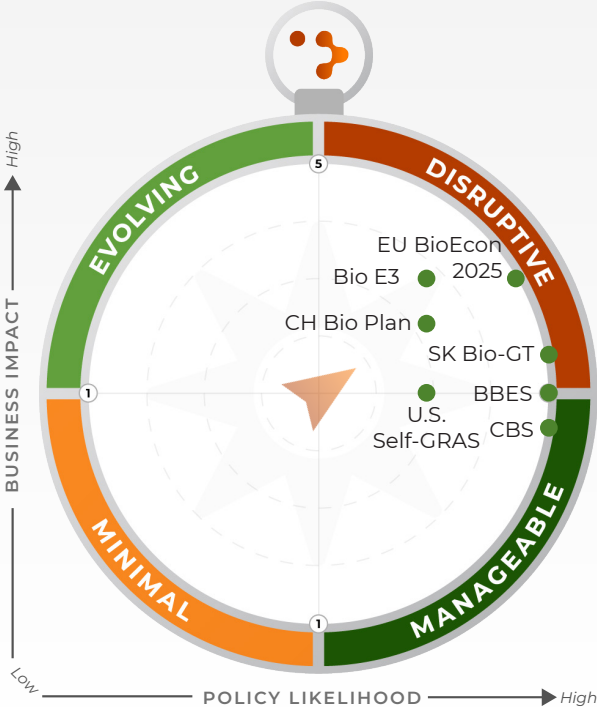


Figure 4: Lux Policy Compass for Growth Through the Bioeconomy related to the Agrifood & Health sectors.

POLICY	POLICY LIKELIHOOD	BUSINESS IMPACT						OVERALL SCORE
		Input	Process	Product	Partners	Demand	Supply-Side Impact	
India BioE3 policy for domestic biomanufacturing (Bio E3)	4	3	4	4	3	4	4	4
South Korea Presidential Bio Committee & Bio-Great Transformation Strategy (SK Bio-GT)	5	3	4	4	3	3	3	3.3
EU Bioeconomy Strategy 2025 (Updated EU Bioeconomy Framework) (EU BioEcon 2025)	5	4	4	3	3	4	4	4
China National Plan for Biomanufacturing (Five-Year Plan extensions + 2025+ strategy) (CH Bio Plan)	4	4	4	3	3	3	4	3.7
The U.S. self-affirmed GRAS (generally recognized as safe) policy (U.S. Self-GRAS)	4	2	3	3	4	4	3	3
Brazil bioeconomy strategy (BBES)	5	3	3	3	4	3	3	3
Canada bioeconomy strategy (CBS)	5	3	3	3	3	3	3	2.7



Growth Through the Bioeconomy

POLICY HIGHLIGHT:

Korea's Bio-GT signals a strategic push to lead biomanufacturing scale-up

Korea's Bio-GT strategy positions the country to become a major hub for biomanufacturing and biobased innovation in Asia. What distinguishes this approach is its combination of industrial policy, long-term funding, and focused sectoral priorities. Korea is not only expanding research capacity but also committing to large-scale infrastructure, specialized workforce training, and commercialization pathways that integrate biotechnology across food, health, and materials sectors. This reflects a national ambition to secure economic resilience by building domestic capabilities in high-value bioprocessing for agrifood inputs.

For global ingredient and technology companies, Bio-GT creates a supportive environment for partnership, especially in precision fermentation, synthetic biology, and functional health ingredients. Access to pilot and demonstration facilities and collaboration with top-tier academic institutions offer a unique foundation for scaling precision fermentation, synthetic biology, and advanced bioprocessing. Policies within Bio-GT also prioritize regulatory streamlining, reducing uncertainty around genomic techniques and molecular innovation. These elements shorten time to market for novel ingredients and accelerate Korea's emergence as a test bed for biobased solutions.

The strategy also expands demand from Korean manufacturers for feedstocks, strains, enzymes, and digital bioprocessing tools. At the same time, the emphasis on localizing production raises questions for global companies: How much capacity will be domestically controlled? How competitive will Korean plants be on cost and scale? And how will Korea's regulatory stance interact with frameworks in the EU, U.S., and China? Companies that rely on multiple geographies for market access will need to evaluate how Korea's growing influence shifts competitive dynamics across Asia.

If Korea succeeds, it could define new benchmarks for integrated bioeconomy development, influencing how other governments design subsidy structures and innovation clusters. If adoption or capacity growth slows, the country may face overinvestment in specific segments, creating volatility or consolidation in the biomanufacturing ecosystem.



Lux Take:

Korea's Bio-GT matters most for companies working on higher-value ingredients and enabling technologies that fit the country's scale-up agenda. Precision-fermented ingredients, enzymes, specialty biomolecules, and process tools are more aligned than bulk food ingredients with what Korea is trying to build. Companies in those segments should engage early where Korea offers pilot infrastructure, funding, and partnership advantages; companies outside those segments should treat Bio-GT as a selective opportunity rather than a broad imperative.



Impactful Packaging

Packaging is a focal point of environmental policy as governments target waste, recyclability, and material safety across the product life cycle. Regulatory activity sits within the Manageable zone (Figure 8), reflecting clearer policy direction and implementation pathways. Measures like extended producer responsibility (EPR), PFAS restrictions, circular economy frameworks, the EU's PPWR, REACH updates, and California SB54 are pushing companies to rethink material choices, recovery systems, and end-of-life outcomes. Across Europe, the U.S., APAC, and emerging markets like Indonesia, policy is making packaging a regulated component of product design and market access.

Opportunities

The tightening policy landscape creates opportunities to innovate in the packaging formats most relevant to agrifood portfolios: flexible films, coated paper, rigid plastic containers, trays, and reuse-ready delivery formats. The EU PPWR accelerates the shift toward recyclable and reuse-ready formats, opening markets for advanced materials and circular packaging systems. Expanding EPR schemes, including multimarket implementations and India's structured fee modulation, drive demand for high-performing recyclable mono-materials and robust tracking systems. Companies that invest early in design for recycling, alternative barriers, reuse logistics, and traceability infrastructure can secure market access advantages and reduce long-term compliance costs.

Risks

Risks are driven by regulatory complexity and shifting materials standards. The most exposed formats are multimaterial flexible packaging, food-contact papers that rely on fluorinated barriers, and other structures that perform well today but fit poorly with emerging recyclability or chemical-safety rules. Divergence across regions is especially challenging where the EU is moving faster and with more specificity than the U.S. or many APAC markets, forcing companies to manage multiple packaging specifications at once. Companies that delay adaptation will face noncompliance risk, higher redesign costs, and weaker negotiating leverage as compliant materials remain constrained.



Packaging policy is raising the bar on recyclability, recovery, and material safety, turning packaging into a design and compliance priority. Food and beverage companies will need to rethink formats, phase out higher-risk materials, and plan for stronger producer responsibility and circularity requirements. Acting early can help companies avoid costly redesigns, protect market access, and support more credible sustainability claims, while fragmented compliance demands and restricted material choices will increasingly challenge slower-moving portfolios.

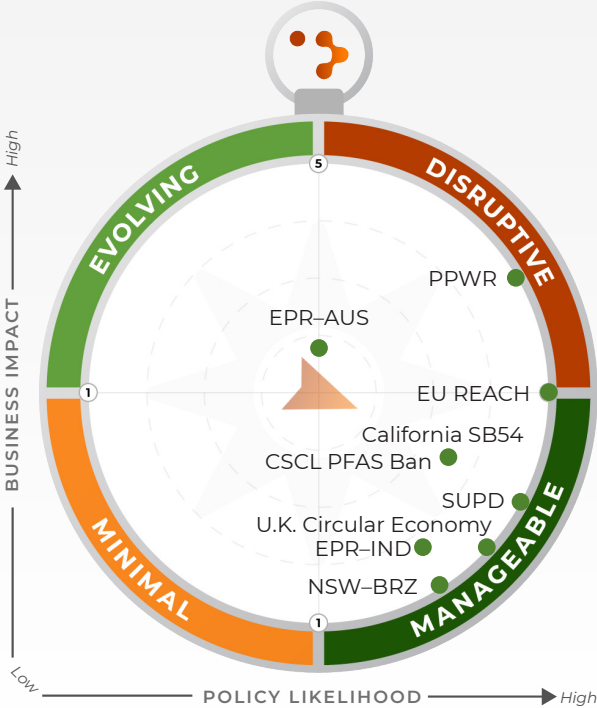


Figure 5: Lux Policy Compass for Impactful Packaging related to the Agrifood & Health sectors.

POLICY	POLICY LIKELIHOOD	BUSINESS IMPACT						OVERALL SCORE
		Input	Process	Product	Partners	Demand	Supply-Side Impact	
EU Packaging & Packaging Waste Regulation (2025/40) (PPWR)	5	4	4	3	4	3	4	4
EPR for packaging and single-use plastic ban (U.K. Circular Economy)	5	3	3	3	2	2	2	1.7
Mandatory EPR for plastic packaging – Indonesia (EPR-IND)	4	3	3	2	3	2	2	1.7
Brazil's National Solid Waste Policy (NSW-BRZ)	5	3	2	2	3	2	2	1.3
Japan PFAS ban (Chemical Substances Control Law Amendment) (CSCL PFAS Ban)	4	4	3	3	2	1	3	2.3
EU REACH* (chemicals regulation)	5	4	3	3	3	2	2	3
Single-Use Plastics Directive (SUPD)	5	3	3	3	2	2	3	2
Plastic Pollution Prevention and Packaging Producer Responsibility Act (California SB54)	4	3	3	3	3	2	3	2.3
Australia EPR scheme (EPR-AUS)	3	3	3	3	4	3	4	3.3



Impactful Packaging

POLICY HIGHLIGHT:

EU PPWR pushes structural portfolio redesign

The PPWR is redefining packaging strategy across Europe by introducing binding design rules, minimum recycled-content thresholds, and ambitious reuse targets. Unlike earlier directives, the PPWR is designed to eliminate national fragmentation by applying uniform requirements across all Member States. As a result, packaging compliance is shifting from a market-by-market exercise to a continentwide design imperative. For companies operating in the food and beverage industry, this regulation directly influences material choice, barrier performance, food-contact chemistry, and operational efficiency.

One of the most demanding aspects of PPWR is its level of specificity. Recyclability criteria require companies to use materials compatible with established recycling systems, which often means transitioning to mono-material structures or adopting new barrier technologies. Reuse and refill obligations create logistical and behavioral challenges that manufacturers and retailers must address collectively. Meanwhile, recycled-content targets increase competition for high-quality recycle, which will reshape procurement strategies and supplier relationships.

The regulation is already creating strong momentum among converters, materials firms, and retailers to accelerate the development of next-generation solutions. Companies with advanced coating technologies, functional barriers, and high-performance monomaterials stand to benefit. Digital tools for traceability, sorting, and life cycle assessment will also become central to compliance and competitive advantage. As PPWR enters implementation, companies must prepare for iterative adjustments as recycling infrastructure scales and enforcement mechanisms become clearer.

The broader significance of PPWR lies in how it influences global markets. Many non-EU jurisdictions are watching the regulation closely and may replicate its structure. For global brands, aligning packaging portfolios with PPWR may offer an efficient route toward harmonized compliance. However, those with legacy packaging lines or complex mixed-material formats may face costly transitions and accelerated obsolescence.



Agrifood clients should treat PPWR as a strategic packaging roadmap, not a last-minute compliance exercise. Prioritize high-volume and hard-to-recycle formats, especially multilayer plastics and single-use packaging. Redesign efforts must balance recyclability, reuse, food safety, shelf life, and retailer expectations. Companies that act early can reduce EPR cost exposure, secure supplier support, and maintain EU market access. Those that delay will face rising costs, tighter enforcement, and fewer packaging options.



Conclusions

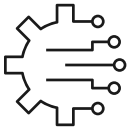
A central pattern emerging from the Agrifood and Health Policy Compass is the growing asymmetry between Manageable and Disruptive policy forces. Roughly two-thirds of the 30 policies — across health, packaging, and parts of resilience — are clustered in the Manageable zone, where clearer standards around labeling, ingredients, and materials are steadily raising compliance baselines. These do not immediately reshape markets but create cumulative pressure, narrowing the range of viable formulations, formats, and sourcing strategies over time in regions like the EU and APAC.

In contrast, a smaller set of Disruptive policies is driving structural change. Regulations like EUDR, PPWR, and elements of bioeconomy and NGT reform are redefining market access, production systems, and innovation pathways. These policies operate upstream and affect input eligibility, and infrastructure development, and in doing so, determine which value chains can scale and where.

A second pattern is the limited presence of Evolving policies. Regulatory frameworks are increasingly polarized — either well defined and implementable or system-level and transformative. This reduces the window for gradual adaptation and forces companies to respond to rapid, albeit clearer signals, whether through incremental compliance or more fundamental shifts in strategy.

Timing is therefore critical. Policies that open new pathways, such as bioeconomy incentives or NGT reform, will attract rapid investment and capacity buildout, while restrictive measures like EUDR or PFAS bans can quickly constrain supply. Companies should move early where the policy direction is clear and the commercial fit is strong, especially in packaging redesign and alternative ingredient pathways.

Implications



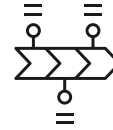
Regional policy alignment is becoming a determinant of competitiveness.

Localization of input availability and production is becoming more important as policies reflect regional priorities around food security, sustainability, and industrial growth. Companies need to balance global growth and the reality of nationalistic policy to align operations with local regulatory ecosystems to remain competitive. Partnerships with local suppliers, governments, and innovation hubs can improve resilience and market access, particularly in regions like the EU actively shaping bioeconomy and agricultural policy.



Policy exposure is concentrated at the input and market access ends of the value chain.

Agrifood companies can't treat policy as a downstream constraint; it is increasingly defining both input availability and market entry. Mapping exposure across sourcing, ingredients, and packaging will be vital to understand where risks and opportunities concentrate. Upstream policies, such as deforestation requirements and bioeconomy programs, affect raw material availability, supplier resilience, and cost structures. Downstream policy measures, including labeling rules and packaging requirements, shape product design, claims, and market positioning. Companies should use Lux's Policy Compass to prioritize action where policy has the greatest impact on supply continuity, compliance costs, and growth opportunities.



Policy-driven tipping points will define market transitions.

Competitive advantage will depend on identifying where policy signals converge with technology readiness to trigger market shifts. Whether in traceability systems, natural ingredient substitution, sustainable packaging, or biomanufacturing scale-up, companies that align early will capture value. Laggards will face reactive compliance cycles, higher costs, and reduced strategic flexibility in markets where regulation increasingly defines the rules of competition.



Lux

Recommends

Prioritize alignment with high-impact policy zones

Agrifood clients should focus resources on policy areas that directly reshape cost, access, and supply security, including EUDR, PPWR, sustainable sourcing mandates, and bioeconomy policies that support biomanufacturing and alternative inputs. Not all policies require the same level of response. Companies should distinguish between manageable policies that demand steady compliance upgrades and disruptive policies that redefine market access or supply structures. Prioritizing areas where policy shifts alter economic fundamentals — such as raw material sourcing, packaging systems, and biobased production — will deliver greater strategic value than uniform compliance across all fronts.

Build regulatory intelligence into commercial decision-making

Companies should integrate regulatory tracking into market selection, portfolio planning, and customer engagement, ensuring that commercial strategies reflect both current requirements and anticipated shifts. The immediate focus should be on markets tightening standards around labeling, packaging, and traceability — especially the EU and selected U.S. states — alongside markets using incentives to shape new technology pathways, including Korea, China, and other APAC bioeconomy hubs.

Strengthen control over critical inputs and systems

As policies increasingly target upstream inputs and system-level outcomes, companies will need deeper visibility into and influence over sourcing networks, ingredient flows, and packaging systems. This means investing in traceability infrastructure, qualifying alternative suppliers, building closer partnerships with packaging and ingredient providers, and monitoring emerging networks like recycling and biomanufacturing ecosystems. Greater control will reduce exposure to disruption, improve adaptability as regulations evolve, and help companies respond faster when policy changes affect sourcing, packaging, or production requirements.



About Lux

Lux Research fuels innovators to not only imagine what's possible in the future but also operationalize innovation success in the near term. We deliver research and advisory services to inspire, illuminate, and ignite innovative thinking that reshapes and grows businesses. Using quality data derived from primary research, fact-based analysis, and opinions that challenge traditional thinking, our experts focus on finding truly disruptive innovations that are also realistic and make good business sense.

The “Lux Take” is trusted by innovation leaders around the world, many of whom seek our advice directly before placing a bet on a startup or partner — our clients rely on Lux insights to make decisions that generate fantastic business outcomes. We pride ourselves on taking a rigorous, scientific approach to avoid the hype and generate unique perspectives and insights that innovation leaders can't live without.

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