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SYSTEMS-FIRST ENVIRONMENTAL RISK ASSESSMENT: THE CASE FOR CHANGE

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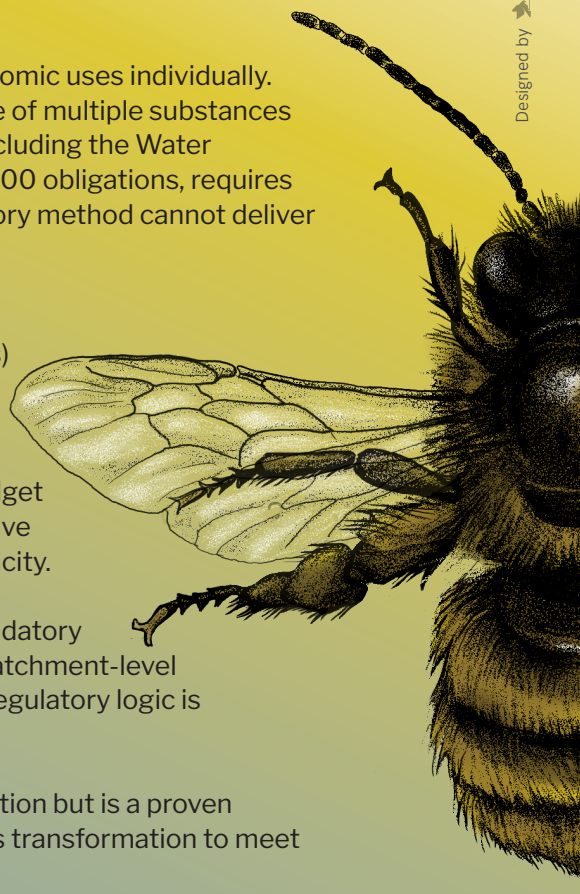
THE PROBLEM

EU pesticide regulation assesses substances and their agronomic uses individually. Yet environmental impacts arise from the combined pressure of multiple substances across entire landscapes over time. EU environmental law, including the Water Framework Directive, Nature Restoration Law, and Natura 2000 obligations, requires ecological outcomes at landscape scale. The current regulatory method cannot deliver these outcomes.



THE PROPOSED SOLUTION

Each ecological region (aligned with WFD river basin districts) receives an annual toxic-unit (TU) budget. Each pesticide carries a TU value based on its ecotoxicological profile, application rate, and persistence. Farmers register intended applications digitally through CAP land parcel systems. If budget remains, the application is confirmed. This manages cumulative pesticide pressure against a defined ecological carrying capacity.

Denmark already operates the necessary infrastructure: mandatory digital pesticide reporting, high-resolution parcel data, and catchment-level groundwater monitoring. No new systems are required; the regulatory logic is extended, not replaced.

Systemic regulatory budget setting is new in chemical legislation but is a proven concept to operationalise regulation and incentivise business transformation to meet sustainability goals e.g. reduce CO2-emissions.

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Key advantages

ENVIRONMENTAL PROTECTION

Cumulative pesticide pressure is managed against legally binding ecological thresholds at river basin scale, not inferred from per-product assessments.

REGULATORY SIMPLIFICATION

The system-level ecological question is answered once per region. This reduces repeated per-substance re-evaluation and delivers greater regulatory predictability for industry.

RESISTANCE MANAGEMENT

Higher-impact substances are not pre-emptively banned. Rare, justified use remains available within the budget, supporting rotation of modes of action under IPM.

FARMER ACCESS

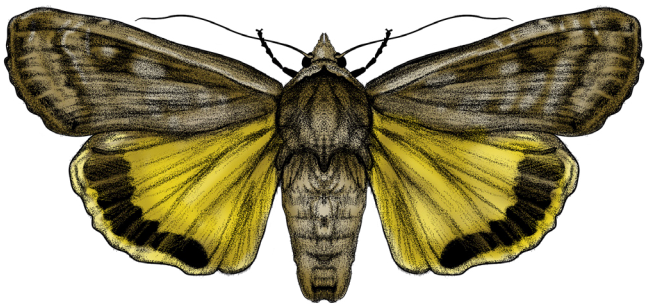
All holdings receive a proportional baseline entitlement. A regulated secondary market provides flexibility in high-pressure seasons. Rather than bans, product choice stays with the farmer.

FAIR ACCESS

Entitlements are allocated by area and crop type, not by application order. Use-it-or-lose-it rules, holding caps on transfers, and a reserve for new entrants prevent monopolisation.

MARKET INCENTIVES

Substances with low toxicity and rapid degradation cost less from the regional budget. This rewards manufacturers of target-specific, environmentally benign products without regulatory prescription.



Legislative opportunity

Three targeted amendments within the current Omnibus process would be sufficient: linking use conditions under Regulation 1107/2009 to regional ecological limits; introducing Regional Pesticide Management Plans under the Sustainable Use Directive; and aligning regional budget calibration with WFD and Nature Restoration Law targets. No new legislative framework is required.

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