International Wool Textile Organisation AISBL
Rue de d'Industrie, 4, 1000 Brussels, Belgium

+32 02 5054010
iwto@iwto.org

Position Paper on Biodiversity in the Environmental Footprint (EF) Method Review: ensuring fair and science-based treatment of natural fibres in BioMAPS integration

Executive Summary

The International Wool Textile Organisation (IWTO) supports the EU's ambition to strengthen biodiversity protection through robust, harmonised sustainability information for consumers and brands alike. We welcome the TAB's work to improve how agricultural practices and biodiversity are represented in the EF method. However, the current direction, using 'organic' certification as an interim proxy for biodiversity, and developing biodiversity scaling factors at a coarse global level, with planned integration via BioMAPS, risks creating unintended bias against natural fibres. Especially if pasture/rangeland systems and diverse low-input fibre cropping systems are not adequately represented.

Because EF methods can remain in place for multiple years, an 'organic-only' interim would lock in unfair outcomes over an entire EF method cycle — posing real implications for farmer livelihoods and global fibre supply chains. A recent rapid technical review of BioMAPS, including its reliance on PREDICTS-based benchmarking, flags additional structural risks that are particularly relevant for extensive grazing-based fibre systems: (i) biodiversity is assessed relative to a primary (best-condition) vegetation reference state, (ii) results can be dominated by land area if intensity and reference conditions are not handled carefully, (iii) only a limited set of management parameters may be recognised, and (iv) global datasets and country-average fallbacks may generate unreliable farm-level signals in heterogeneous landscapes.

Key asks

- Do not rely on 'organic' as the sole proxy for improved biodiversity outcomes. Extend the framework to additional practices (grassland management, landscape features, crop rotation) that are relevant to fibre supply chains globally.
- Ensure improved biodiversity performance is accessible to non-organic systems from day one. If 'organic' coefficients are used, they must sit within an immediate practice-based framework (equivalence pathway + tiered evidence) so farmers are rewarded for verified management outcomes, not only for a label.

- Ensure BioMAPS integration is demonstrably representative of pasture/rangeland grazing and low-input fibre crop systems, with biome- and climate-sensitive regionalisation rather than one global average applied to all countries.
- Avoid systematic penalisation of extensive systems (large-area, low-intensity production) by ensuring land-use intensity, reference conditions and landscape context are treated appropriately and transparently.
- Provide transparency and stakeholder review on the evidence base (meta-analyses selected, effect sizes, datasets, and parameter defaults) before coefficients are finalised.
- Ensure BioMAPS integration is based on transparent and regionally representative datasets (including PREDICTS inputs), with clear uncertainty information, and avoid country-average fallbacks where verifiable primary data can be supplied; biodiversity improvements (e.g., restoration plantings and habitat features) should be detectable and credited, not only treated as 'less bad' against an unreachable baseline.

Why biodiversity matters for textiles and fibres

Biodiversity loss is driven primarily by land-use change and land management. Textiles are not a 'land-neutral' sector: natural fibres are either grown (cotton, flax, hemp and other bast fibres), or produced in grazing landscapes (wool, cashmere, alpaca, mohair and other animal hair fibres). Because natural fibres come from managed landscapes, they can contribute to biodiversity outcomes - positively or negatively - depending on land conversion history, management intensity, and landscape features (e.g., habitat mosaics, riparian zones, set-aside areas).

A biodiversity indicator in EF should therefore do two things at once: (i) identify and discourage biodiversity-damaging practices and land conversion, and (ii) recognise and incentivise biodiversity-supporting practices that maintain or restore ecological function while producing renewable materials.

What the TAB is currently exploring

The TAB agricultural practices workstream proposes an interim approach to 'acknowledge Organic Farming in the production phase' by introducing land-use flows for organic farming and applying scaling coefficients to EF land-use impact categories - specifically Land Use – soil and Land Use – biodiversity. The coefficients are derived from meta-analyses in the JRC Evidence Library, with soil focusing on Soil Organic Carbon (SOC) stocks and biodiversity focusing on species richness and abundance.

The TAB notes that: (a) coefficients currently refer to a global scale and would be associated with all countries' CFs until more granular data are available, and (b) biodiversity testing is planned together with method developers from Fraunhofer Institute (BioMAPS).

Our concern: 'organic' is too narrow as a biodiversity proxy for global fibre supply chains

We recognise that organic certification is a practical starting point because it is a defined production system with traceability mechanisms. However, using 'organic' as the primary lever to represent biodiversity benefits is not adequate for global textiles and risks policy and market distortions:

- Many biodiversity-positive fibre systems are not certified organic (e.g., extensive grazing systems, low-input cropping with rotations, integrated pest management, landscape conservation measures).
- A label-based proxy can become a 'gatekeeper': if EF benefits are accessible only through organic certification, non-organic but nature-positive systems are misrepresented.
- Textile raw materials are sourced globally. Applying a single global coefficient to all countries and production contexts risks systematically disadvantaging regions where organic certification is less prevalent but biodiversity outcomes may be strong.

What BioMAPS can add and how it may misrepresent natural fibres

BioMAPS is a multi-scale biodiversity impact method intended for LCA. It combines location-based biodiversity risk, local land-use intensity (via management parameters), and a landscape development component. We welcome the intention to move beyond 'area-only' land occupation metrics.

In practical terms, BioMAPS applies a subtractive principle: a reference or "best condition" is established for an ecosystem type, and mapping layers and management parameters are used to apply risk-based reductions to derive biodiversity characterisation factors and risk indices for land use. A key input for the local biodiversity response modelling is the PREDICTS project (Projecting Responses of Ecological Diversity in Changing Terrestrial Systems), including Biodiversity Intactness Index-type benchmarks used to quantify changes in richness and abundance under land-use pressures. The transparency, spatial resolution and representativeness of these underlying datasets is therefore critical for fair outcomes in EF - especially for heterogeneous grazing landscapes.

Key shortcomings and risks to address before EF integration

- Risk of area-dominated results: BioMAPS multiplies characterisation factors by land area; case study evidence indicates land area can be decisive. Extensive systems (large area, low intensity production) - common for grazing animal fibres and some low-input fibre cropping systems - may therefore appear disproportionately negative unless intensity and reference conditions are handled carefully. This is particularly material for animal based fibres, where land occupation per kilogram of fibre can be high relative to land footprints associated with manufacturing sites for synthetic fibres.
- Reference condition and benchmarking: BioMAPS evaluates biodiversity relative to an intact or primary (best-condition) vegetation reference, using a "space-for-time" substitution approach. This can make managed native pastures, long-established grazing systems, or diverse managed pastures appear systematically poor if the only comparison point is an intact benchmark, and may limit the method's ability to recognise incremental on-farm improvements (e.g., restoration plantings) beyond showing they are 'less bad' than before. For EF, this raises questions about how reference conditions and baselines should be defined for managed landscapes, and how improvement pathways are credited.
- Rangeland intensity mapping: representing grazing systems requires robust indicators for grazing intensity and rangeland condition. Broader biodiversity literature highlights that mapping rangeland use intensity is particularly challenging and must control for rainfall, soil and other context factors; coarse proxies risk misclassification. In addition, global land-use and intensity classes may not adequately distinguish long-established native rangelands, planted pasture, and diverse managed pastures - a distinction that is critical for fair assessment of grazing-based fibres.
- Limited management parameters and practice sensitivity: BioMAPS appears to rely on a small number of management parameters per land use, meaning many biodiversity-positive practices may be excluded from scoring. If the parameter set is too narrow, grazing practices that can materially influence outcomes (e.g., rotational/adaptive grazing, ground cover management, protection of riparian areas, and habitat set-asides) may not be recognised, reducing incentives for improvement and increasing the risk of misleading comparisons between systems.
- Landscape ecology is simplified: BioMAPS acknowledges that its landscape index (LDI) does not capture patch configuration (connectivity, distances, shapes), even though these are important determinants of biodiversity outcomes. This creates a risk that landscape stewardship actions often used in fibre landscapes (e.g., tree planting corridors, riparian buffers, and patch connectivity) are not adequately reflected.

- Transparency, dataset quality and fallback defaults: BioMAPS relies on global spatial datasets and PREDICTS-derived models for benchmarking and response functions. If underlying data (including spatial resolution, category definitions, sample sizes, and uncertainty) are not sufficiently transparent, stakeholders cannot assess whether the method is fit for heterogeneous grazing landscapes. In addition, BioMAPS documentation indicates that, where detailed data are missing, average risk values may be applied at country or regional level - creating a risk of non-representative results and unreliable farm-level signals unless there is a clear pathway to use verified primary data.
- Weighting of global versus regional/local risks: BioMAPS places greater emphasis on global biodiversity risk layers than on regional or local biodiversity values. While global priorities matter, this weighting choice is debatable and may undervalue regionally important biodiversity in fibre landscapes unless carefully justified and tested.
- Scope limitations and secondary effects: BioMAPS focuses on land use impacts on biodiversity and does not capture secondary effects such as climate-driven biodiversity impacts. EF users should be clear about what the indicator does and does not cover, and avoid using it as a stand-alone proxy for overall biodiversity risk.
- Multi-scale aggregation and double counting: BioMAPS itself notes that when biodiversity levels are assessed simultaneously, double counting cannot be avoided; EF integration therefore needs transparent rules to avoid systematic over-penalisation of land-based products.

What biodiversity evidence tells us about grazing and fibre landscapes

Biodiversity outcomes depend on intensity and context. Recent place-based research indicates that large portions of biodiversity can persist in largely untransformed rangelands and that less intensive pastoral systems may maintain higher biodiversity abundance than intensive cropland systems. This reinforces the need for biodiversity models to distinguish clearly between: (i) conversion of natural habitat to cropland or planted pasture, and (ii) long-established rangeland pastoralism with low-input management.

It also highlights a known pitfall in global modelling: some global approaches do not adequately differentiate between planted pastureland and untransformed rangeland, leading to policy mistakes. This is directly relevant to EF textiles because many natural fibre feedstocks originate in rangeland landscapes.

Recommendations for the TAB

We propose the following safeguards and improvements so that EF biodiversity modelling is scientifically robust and does not unintentionally disadvantage renewable natural fibres, ensuring a robust EF methodology that empowers consumers and brands alike, while protecting farmer livelihoods.

Broaden from 'organic' to 'practices-based' recognition

- Do not implement 'organic' as a stand-alone interim proxy. If organic coefficients are introduced, they must be embedded in an immediate practices-based framework that also recognises other verified biodiversity-positive systems (e.g., extensive grazing and low-input cropping) through an equivalence pathway and tiered evidence options.
- Prioritise practices already identified through the TAB survey process, including grassland management and landscape features, and ensure these are operationalised for both cropping and grazing systems.
- Ensure that non-certified but verifiable practices (e.g., rotational/Adaptive Multi-Paddock grazing, habitat set-asides, hedgerows, riparian buffers, crop rotations) can be represented using credible evidence and feasible data pathways.

Ensure representativeness for pasture/rangeland systems

- Include pasture- and rangeland-specific evidence (meta-analyses and datasets) when deriving biodiversity effect sizes - do not extrapolate from cropland evidence.
- Parameterise grazing intensity using indicators that are relevant to sheep and mixed livestock systems (not only cattle density proxies), and control for climate/soil context.
- Ensure reference conditions for grazing landscapes are fit for purpose in a product-footprint context: avoid using primary (best-condition) vegetation as the only benchmark for managed landscapes and consider options such as time-bound recent-state references or explicit baseline years so that verified improvements (e.g., restoration plantings and habitat features) can be credited.
- Pilot-test the method on representative plant and animal fibre supply chains (e.g., Australia, New Zealand, South America, Southern Africa) and publish the sensitivity results.

Regionalisation and transparency

- Avoid applying a single global coefficient to all countries' CFs. Implement the TAB's own proposed 'hierarchical' approach: move towards climate-zone/biome regionalisation as evidence allows.

- Publish the selected meta-analyses, effect sizes, assumptions and default parameter values used to calculate coefficients and BioMAPS inputs. This should include clear documentation for key underlying datasets and models (including PREDICTS-related inputs), covering spatial resolution, sample sizes/coverage, category definitions, uncertainty and any fallback rules (e.g., use of country-average risk values).
- Enable independent verification of representativeness: where raw data cannot be fully shared, provide at least aggregated diagnostics (e.g., number of reference plots per biome/region and uncertainty ranges) so stakeholders can understand how scores are derived and how sensitive they are to data gaps.
- Provide a clear mechanism for stakeholders to supply verified primary data (e.g., remote sensing/MRV, farm-level KPI systems) that can replace coarse defaults and improve representativeness, without making EF compliance unworkable for smallholders. Where primary data are supplied, the method should minimise reliance on country-average fallbacks.

Avoid double counting and provide interpretation guidance

- Define how BioMAPS multi-scale outputs will be aggregated within EF to minimise double counting across biodiversity dimensions.
- Clarify relationships with other EF impact categories (e.g., ecotoxicity, eutrophication) to avoid systematic 'stacking' of penalties on land-based materials.
- Provide interpretation guidance to help users and policymakers understand when biodiversity results reflect land conversion versus management intensity.

What we can learn from food and agriculture labelling

Experience from the food sector shows why biodiversity is difficult to capture with a single, purely modelled indicator. Where LCA-based labels are used, additional practice- and landscape-related indicators are sometimes added (for example, presence of hedges and permanent grasslands) to better reflect biodiversity outcomes and to avoid relying on 'organic' alone.

For EF textiles, this suggests that a workable approach may combine EF-LCIA modelling (such as BioMAPS) with a limited set of verifiable practice indicators - provided these are globally applicable and do not create disproportionate data burdens.

Conclusion

The EF method review is a critical opportunity to improve biodiversity accounting in a way that is both scientifically credible and policy coherent. Natural fibres can deliver renewable materials while supporting ecological functions, but only if EF methods can distinguish damaging land conversion and high-intensity management from low-intensity, well-managed fibre landscapes. We ask the TAB to ensure that BioMAPS integration and the wider agricultural practices workstream reflect global fibre supply chains, include pasture/rangeland evidence, and move beyond organic certification as a single proxy for biodiversity performance. In addition, BioMAPS integration should ensure transparent and regionally representative benchmarking (including PREDICTS-related inputs), fit-for-purpose reference conditions for managed landscapes, and sensitivity to verified on-farm improvements - so that extensive grazing systems are not penalised by design.

References

- European Commission, Joint Research Centre (JRC) (2025). Agricultural practices integration in EF methods: suggestions for the way forward. TAB meeting, 7 October 2025 (working document).
- Maier, S. (2023). Biodiversity Multi-Scale Assessment of Product Systems – BioMAPS. Fraunhofer Verlag.
- Clements, H.S. et al. (2026). A place-based assessment of biodiversity intactness in sub-Saharan Africa. Nature 649, 113– (Article).
- García Herrero, L. et al. (2025). Cleaner Environmental Systems 19: 100334 (Food labelling and LCA limitations discussion).
- Natural History Museum (UK) (n.d.). PREDICTS project and Biodiversity Intactness Index (BII) resources (as used in BioMAPS benchmarking).