CropLife Europe Proposal for Specific Protection Goals for NTA Risk Assessment

To approve plant protection products (PPPs) under Regulation (EC) No 1107/2009, the absence of unacceptable effects on the environment for safe use must be demonstrated in a thorough regulatory process. This general protection goal needs to be translated into specific protection goals (SPGs). Options for SPGs for non-target arthropods (NTAs) have been proposed in the past (EFSA, 2015[1]) and need to be revised according to the EFSA guidance on developing SPGs (EFSA, 2016[2]) with the aim to reflect the evolution of scientific knowledge. As such, the European Commission mandated EFSA in 2024 (EC, 2024[3]) to review the risk assessment methodology for NTAs other than bees as part of the revision of the guidance document on terrestrial ecotoxicology SANCO/10329/2002 (EC, 2002[4]). One aspect of the mandate is to provide the necessary support to risk managers for the setting of SPGs according to the EFSA guidance (EFSA, 2016[2]). **Accordingly, CropLife Europe (CLE) has developed a proposal for SPGs for NTAs which is summarized in this document for consideration by risk assessors and risk managers and for the development of the NTA guidance document.**

SPGs should be established for **key ecosystem services (ESS)** related to the non-target organisms in scope (EFSA, 2016[2]). **The primary ESS of agricultural ecosystems is agricultural production, and consequently it is often considered to conflict with the provision of** regulating and supporting ESS linked to NTAs. Therefore, trade-offs between ESS might have to be considered in the defined SPG options. SPGs for NTAs should also be defined based on the effects of typical land management practice (agronomic baseline) to enable a measurable assessment of the impact of pesticide use. Finally, ESS need to be identified in relation to the respective spatial scale.

The Commission requested maintaining the established separation for target application areas managed by farmers (in-field) and areas outside the production area (EC, 2024[3]). Cropped or uncropped field strips outside the PPP application area are considered in-field. Management of these strips focuses on optimizing agricultural production and depends on local agricultural practice, regulations and landscape structure. **Therefore, the same SPGs should apply to the entire in-field area, which includes the in-field off-crop area.**

Regulation services that enhance agricultural production, namely **pest regulation and pollination,** are the **key ecosystem services provided by NTAs** living in the vegetation or on the soil **in both production and non-production areas**. In areas **outside the production zones,** supporting services such as **secondary production (i.e., provision of habitat) and nutrient cycling** also play a significant role. To simplify, the relevant parameters proposed by CLE for all ESS and Service Providing Units (SPUs) are consolidated into a single table according to the five interrelated dimensions outlined in the EFSA guidance document for developing SPGs (EFSA, 2016[2]) and are organized by spatial scale.

[1] EFSA, 2015: *Scientific Opinion addressing the state of the science on risk assessment of plant protection products for non-target arthropods*. https://doi.org/10.2903/j.efsa.2015.3996

[2] EFSA, 2016: *Guidance to develop specific protection goals options for environmental risk assessment at EFSA, in relation to biodiversity and ecosystem services*. https://doi.org/10.2903/j.efsa.2016.4499.

[3] EC, 2024: *Request to EFSA to review the Guidance Document on Terrestrial Ecotoxicology. Mandate M-2024-0086*

[4] EC, 2002: *Guidance Document on Terrestrial Ecotoxicology*. SANCO/10329/2002

CropLife Europe proposal for Specific Protection Goals for Non-Target Arthropods considering different spatial scales.

Dimension	***Specific Protection Goals - CLE proposal***		
Spatial scale	*In-field*	*Edge of the field/field margin*	*Landscape (incl. in-field and edge of the field/field margin)*
Ecosystem Service	*Pest regulation and pollination* ***(regulating ESS)***	*Pest regulation and pollination* ***(regulating ESS)*** *Secondary production*, Nutrient cycling* ***(supporting ESS)***	*Pest regulation and pollination* ***(regulating ESS)*** *Secondary production*, Nutrient cycling* ***(supporting ESS)***
Service providing unit	*Predatory and parasitoid arthropods, pollinators*	*Common arthropods of agricultural habitat*	*Common arthropods of agricultural landscape*
Ecological entity	*Functional group*	*Community*	*Community*
Attribute	*Abundance*	*Species diversity/biomass*	*Species diversity /biomass*
Magnitude of acceptable effect	*Medium to large*	*Small to medium*	*Tbd*
Temporal scale	*Months to season*	*Weeks to months*	*Tbd*

*Secondary production e.g. provision of habitat

SPGs for In-field (Production Area)

Natural pest predators, parasitoids (beneficial arthropods) and pollinating arthropods are the key SPUs for the ESS pest regulation and pollination. It is highlighted that the main pollinator groups relevant for pollination are managed honeybees, bumblebees and solitary bee species, covered by the bee guidance document (EFSA, 2023[5]). In integrated pest management, the objective is keeping pest damage below economically viable levels for agricultural production, with natural pest control and PPPs serving as complementary tools. When reaching the economic threshold level, intervention becomes essential, and trade-offs may emerge between protecting natural enemies and controlling pest damage through the use of PPPs. In pollination, a trade-off arises when adult insect stages provide pollination, while the herbivore larval stage acts as pest. These trade-offs are addressed by selecting the **functional group as the ecological entity and abundance as the attribute**. The agricultural landscape is characterized by a series of disturbances throughout the cropping season, such as tillage, planting, pest and pathogen control and harvest, leading to communities adapted to disturbance[6]. This is particularly relevant for species which are reliant on ephemeral food resources such as predatory arthropods and pollinators. **Medium to large transient effects up to a season** should therefore be acceptable **as processes of *in situ* recovery and external recolonization which are integral to arthropod population dynamics in agricultural settings regardless of the use of PPPs[7].** This is in line with the request of the Commission[8] that the possibility of recovery/recolonization should be included in the risk assessment.

SPGs for Edge of the Field / Field Margin

Outside the production area, additional provisioning ESS, such as habitat provisioning and nutrient cycling, are important. Thus, the **arthropod community**, including predators, parasitoids and pollinators, becomes the key ecological entity for these supporting ESS with the focus on **protecting the community resilience**. Species diversity and biomass are the key attributes for protecting communities (EFSA, 2016[9]). It is important to note that edge of the field / field margins, which are influenced by various farming practices

[5] EFSA, 2023: *Revised guidance on the risk assessment of plant protection products on bees (Apis mellifera, Bombus spp. And solitary bees).* https://doi.org/10.2903/j.efsa.2023.7989

[6] Benton et al., 2003: *Farmland Biodiversity: Is Habitat Heterogeneity the Key?* Trends Ecol. Evol. DOI: 10.1016/S0169-5347(03)00011-9.

[7] Vasseur et al., 2013: *The cropping systems mosaic: How does the hidden heterogeneity of agricultural landscapes drive arthropod populations? Agriculture,* Ecosystems and Environment. https://doi.org/10.1016/j.agee.2012.08.013

[8] EC, 2024: *Request to EFSA to review the Guidance Document on Terrestrial Ecotoxicology. Mandate M-2024-0086*

[9] EFSA, 2016: *Guidance to develop specific protection goals options for environmental risk assessment at EFSA, in relation to biodiversity and ecosystem services.* https://doi.org/10.2903/j.efsa.2016.4499.

beyond PPP use, are **dominated by species adapted to spatial and temporal disturbances[10]. Therefore, small to medium transient effects for weeks to months** should be considered acceptable allowing for the possibility of recovery/recolonization.

SPGs for Landscape

The landscape scale encompasses in-field, edge-of-field / field margin and additional agricultural and non-agricultural surrounding areas. **CLE considers the landscape scale as most appropriate to set into context potential effects at in-field and edge-of-field / field margin scale.** However, setting SPGs at the landscape level poses challenges due to the diverse landscapes across Europe and the influence of various regulations such as the Sustainable Use of Pesticides Directive, the Habitats Directive, the Nature Restoration Regulation or the implementation of the EU Common Agricultural Policy, as well as on farmers' decision and agricultural practices. To establish a baseline for the impact of agronomic practices beyond PPP use on arthropod communities, it is necessary to define scenarios of "typical landscapes" at default spatial scales. These scenarios should include gradients of habitat / non-habitat composition and configuration, common farming activities and the associated arthropod communities and their natural dynamics. Identifying the natural spatial and temporal variability of communities within these scenarios is essential for providing SPG levels at landscape scale, though challenging due to limited knowledge of diverse arthropod species.

The **arthropod community** serves as the relevant SPU and entity to provide the ESS of pest control, pollination, habitat provisioning and nutrient cycling. As the spatial scale increases, the proportion of habitats less influenced by farming increases potentially featuring more stable but also spatially heterogeneous communities. Protecting **the species attributes diversity and biomass ensures the protection of community resilience**. If no effects, small effects or short-term effects occur at in-field and edge-of-field / field margin scale, no effects at the landscape level can be expected. **CLE considers, therefore, that it is only necessary to evaluate the effects at the landscape level in cases when the ecological recovery option is applied**. Since the landscape scale includes the in-field, some temporal level of effects must be acceptable also at landscape scale to maintain food production. The **acceptable duration and magnitude of effects will depend on the chosen scenarios and defined agronomic baseline.**

[10] Vasseur et al., 2013: *The cropping systems mosaic: How does the hidden heterogeneity of agricultural landscapes drive arthropod populations? Agriculture,* Ecosystems and Environment. https://doi.org/10.1016/j.agee.2012.08.013