

Regulatory exposure assessments for pesticide applications in sport, leisure and amenity areas

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ABSTRACT

All plant protection products (pesticides) registered for use in the UK are evaluated with respect to their potential impact on human health. EC Directive 91/414 identifies four groups which may be exposed to pesticides, namely consumers, operators, bystanders and re-entry workers. The focus of this paper is on assessment of non-dietary exposure, i.e. for operators, bystanders and workers in relation to pesticide use in sport, leisure and amenity areas.

Operators applying pesticides in sport, leisure and amenity situations will apply a wide variety of pesticide formulations from liquid sprays to dusts and granules. The equipment used to apply these will be similarly varied, from tractor mounted boom sprayers to knapsack sprayers and small scale hand held spot treatments. Each scenario which arises requires assessment, in the first instance by mathematical modelling, using such tools as the UK Predictive Operator Exposure Model (UK POEM) and exposure models based on data collected by the Health and Safety Executive (HSE). The assessment will determine whether exposure to the pesticide is acceptable under representative conditions of use and, in tandem with hazard classification of the product, will identify whether personal protective equipment (PPE) will be required.

Bystanders and residents may be exposed to pesticides in several ways. Individuals may be directly exposed to spray drift during application or indirectly to drift fallout, particularly where large scale applications are being made. They may also be exposed to volatilised pesticides released from treated areas. UK regulatory assessments include all of these elements, using data collected for simulated bystanders and surrogate data for airborne pesticides vapours.

Whereas with agricultural crops, re-entry scenarios are mostly restricted to workers, with sport, leisure and amenity areas, members of the public must also be taken into account. These might be people playing sports on treated turf, or using amenity areas for leisure purposes. Using a US Environmental Protection Agency (EPA) model, UK assessments for amenity pesticides typically include an evaluation for children playing on treated turf.

Ultimately, the regulatory decision can be made by comparing exposure estimates with reference doses established from evaluation of the toxicological data.

Reference

UK POEM: http://www.pesticides.gov.uk/uploadedfiles/Web_Assets/PSD/sc8001.pdf