



How to assess the impact of pesticides on human health

Under 91/414/EEC, all compounds and their metabolites must undergo rigorous human health risk assessments before they are approved for use within the EU. As with other risk assessments under 91/414/EEC this follows a tiered approach from worst case to a more refined estimate.

Operator Exposure

Tier 1

An initial estimate of exposure is calculated based on relevant usage scenarios and using a generic model or other appropriate method. This estimate is compared with an appropriate AOEL (Acceptable Operator Exposure Level) that has been derived from toxicity data.

Tier 2

For those substances that exceed the AOEL, it may be possible to refine the original exposure estimate. This can be achieved by considering the exposure reducing effects of PPE (Personal Protective Equipment) and actual exposure by inhalation and dermal absorption.

Tier 3

If necessary, the exposure assessment can be further refined. Additional data can be used to support an argument or the outputs from predictive models can be compared to real data from field studies of a surrogate compound.

Consumer Exposure

Tier 1

The most sensitive toxicological effect derived from animal toxicological studies is used in assessing consumer exposure. The acceptable daily intake (ADI) and the acute reference dose (ARfD) are used in determining the highest acceptable residue concentration.

Tier 2

If the residue exceeds acceptable safety levels it is not necessarily a cause for concern in consumer risk assessment. A more refined calculation taking into consideration dietary intake from processed food or data from animal metabolism studies can be used.

Tier 3

If the compound needs further assessment then there is the opportunity to use data from livestock feeding trials if these exist or to move to a probabilistic risk assessment

Summary

In assessing the risk to human health of pesticides, the intrinsic toxicity of the compound must be related to predicted levels of exposure. Applying a tiered approach to risk assessment facilitates the refinement of exposure and effects scenarios only where necessary.

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