LANDSCAPE LEVEL RISK ASSESSMENT

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Landscape level risk assessment can now be used in the risk assessment of agrochemicals at a European and member state level for both ground and surface water. These approaches allow the standard assumptions behind more conservative tiers of risk assessment to be challenged and assessments made more realistic. At present there is little clear guidance on how digital imagery and distributed datasets (i.e. Graphical Information Systems, GIS) should be used in risk assessments. Guidance will emerge as these data become routinely used. The development of landscape-level approaches will be one of the major drivers for improving higher-tier risk assessment in Europe.

Landscape approaches may be divided into two categories: those that characterise the physical features of a landscape and those that detail habitats and species assemblages within the landscape. The former approach is concerned with, for example, soil types, the location of crops, the types and location of water bodies and is most relevant to refining the exposure assessment. The mapping of species assemblages and habitats is more relevant to the ecotoxicological assessment and represents recent development in the use of GIS for the risk assessment of pesticides.

A key requirement for any landscape approach is access to data of sufficient quality. Large datasets that need a minimum level of reporting are required if results are to useable. Although datasets for Europe are available different bodies in different countries often own them, and access to these data for a scale relevant to the risk assessment of pesticides is often prohibitively expensive. Consequently, the development of methodologies for risk assessment in Europe continues to lag behind that in the USA, which has a policy of open access to publicly funded data. The lack of minimum standard databases means that assessments may be performed without minimum standards being met. The provision of data of the required quality is one of the major challenges presented within Europe.

Landscape approaches are not only confined the surface and groundwater regulatory assessment. The ability to integrate many levels of data is of general use in decision-making, for example where to position study sites in sensitive areas and also for making risk-based decisions in the absence of any regulatory framework. In addition the versatility of landscape approaches may be used in a variety of exposure assessments.

The integration of satellite and aerial imagery, species distrubution data and distributed datasets allow risk assessments to be made at the local (often field) scale.
The potential therefore exists for the risk assessment of agrochemicals to be made from a knowledge of the characteristics of the landscape and of the species present in it. Such risk assessments can therefore be said to be truly protective of a landscape.