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BREAM – Exposure to pesticide vapours

Jan 2010
Final project workshop

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Vapour exposure model

- Emission of vapour from a treated field
- Dispersion of vapour in the environment
- Behaviour of a bystander within that environment

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From dispersion modelling:-

- Combined two years of data from Andrewsfield
  - Ideally more years and more sites
- Flat terrain, 1.5 km square field with adult and child at the centre
- Obtain a distribution of concentrations

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Possible methodology for calculating airborne vapour concentrations:

Distributions of concentrations of vapour in air.

Distribution		Mean	75th percentile	95th percentile
Concentration per unit emission ($\mu g\ m^{-3}$ / $\mu g\ m^{-2}\ s^{-1}$)	Adult	43.0	64.8	127.0
	Child	52.9	80.0	160.3

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Using 100 g/ha application;
95% volatilisation in 24 hours = 0.12 µg m^{-2} s^{-1}

Distributions of concentrations of vapour in air:

Distribution		Mean	75th percentile	95th percentile
Concentration per unit emission (µg m^{-3} s^{-1})	Adult	5.2	7.8	15.2
	Child	6.3	9.6	19.2

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Summary of work on vapours:

- Huge uncertainty over emission of vapours from treated fields
  - Further work essential
- Improvements in the current ‘model’ are possible by including realistic UK met information
- Current model assumes 15 ng/l airborne concentration for long term exposure
  - Likely to be very protective for low dose chemical
- Need to recognise potential for high one-off exposures
  - 15 ng/l less likely to be protective, particularly with high-dose chemicals
- Proposed new model based on applied dose