## PERSISTENCE OF SEEDS FROM CROPS OF CONVENTIONAL AND HERBICIDE TOLERANT OILSEED RAPE

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Persistence of oilseed rape seeds is an important issue in evaluating risks concerned with genetically modified (GM) crops. This talk discusses models fitted to data from the UK 'BRIGHT' project, which comprised a series of large plot rotation experiments at 5 sites, investigating environmental and agronomic implications of growing GM herbicide tolerant (HT) oilseed rape and sugar beet. The analysis, by GenStat, assumed a Poisson distribution and fitted a model  $Y = N \times P_1 \times P_2$  (T-0.5) to the observed numbers of seeds Y, where N is the number of seeds shed at harvest,  $P_1$  the proportion of the seeds remaining after the first 6 months,  $P_2$  the proportion remaining after each subsequent year, and T the time in years. Sequences of analyses were fitted to assess whether the parameters differed between treatments or between the individual plots of each experiment. Results showed a rapid decline in seed numbers in the first few months after harvest, giving a mean loss of seeds of c. 60%. In subsequent seasons the seedbank declined much more slowly at 4 sites (c. 20%/year) and the models predicted 95% seed loss after c. 9 years. Decline was faster at site 5. There were no clear differences between the cultivars in either the numbers of seeds shed at harvest, or their subsequent persistence. Thus HT cultivars of rape seem no more persistent than conventional ones, but there is still a potentially serious problem associated with the temporal persistence of their seeds in soil.