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Nota di contenuto	Gene Flow from GM Plants; Contents; List of Contributors; Preface; 1 Where science fits into the GM debate; 1.1 Background; 1.2 Regulation; 1.3 Stimulus for research; 1.4 Vigorous campaigning; 1.5 The GM Nation Public Debate; 1.6 Gene flow issues raised in the public debate; 1.6.1 GM is unnatural; 1.6.2 Genetic contamination; 1.6.3 GM and organic agriculture cannot coexist; 1.6.4 GM crops will damage the environment; 1.7 Findings of the debate; 1.8 Discussion; 1.8.1 GM crops have become 'a lightning rod' for a range of concerns 1.8.2 Difficulty of holding a rational discussion of GM crops in context1.8.2.1 Method not mission; 1.8.2.2 The FSEs raised wider issues; 1.8.3 Broader agricultural issues; 1.8.4 Political context; References; 2 Crop biotechnology - the state of play; 2.1 Introduction; 2.2 A need for better tools in crop production systems; 2.2.1 Crop production and sustainability; 2.3 The current state of GM crops; 2.3.1 Herbicide tolerance; 2.3.2 Insect protection; 2.3.3 Virus resistance in plants; 2.4 Future developments; 2.4.1 Expansion of Bt and HT; 2.4.2

Other pest resistance traits

2.4.3 Tolerance to abiotic stress2.4.4 Output traits; 2.4.5 Other GM plants; 2.4.6 Gene flow containment; 2.5 Summary; Acknowledgements; References; 3 Pollen dispersal vectored by wind or insects; 3.1 Introduction; 3.1.1 The fascination with pollination; 3.1.2 The pollination of crop plants; 3.1.3 Pollen dispersal, gene flow and GM crops; 3.2 Evolutionary and ecological aspects of pollination biology; 3.2.1 Evolutionary aspects of wind-mediated pollination; 3.2.2 Adaptations for wind pollination; 3.2.3 Airborne pollen recording for allergy sufferers

3.2.4 Evolutionary and ecological aspects of entomophily3.2.5 Adaptations for entomophily; 3.3 Managing insect pollination for crop production; 3.3.1 Crops benefiting from wild and managed pollinators; 3.3.2 The use of managed pollinators; 3.4 Experiments and observations on vectors in oilseed rape, beet and maize; 3.4.1 Uncertainties on the relative importance of different vectors in oilseed rape; 3.4.2 Oilseed rape cross-pollination: observations; 3.4.3 Oilseed rape cross pollination: experimental data; 3.4.4 Other crops; 3.5 Processes and patterns with wind-mediated pollination

3.5.1 Deposition, turbulence and impaction3.5.2 Long-distance dispersal; 3.5.3 Local barriers, directionality and edge effects; 3.6 Processes and patterns with insect-mediated pollination; 3.6.1 Functional groupings of pollinators; 3.6.2 Common processes: local dispersal; 3.6.3 Processes and patterns for social insects; 3.6.4 Edge effects in recipient patches; 3.6.5 Patchiness and pollinator behaviour; 3.6.6 Influence of landscape patterns on pollen dispersal; 3.7 Modelling pollen dispersal based on vectors; 3.7.1 General models; 3.7.2 Modelling elements of bee behaviour

3.8 Lessons for the management of gene flow from studies on vectors

Sommario/riassunto

Gene flow is not unique to genetically modified (GM) crops, but the possibility of the spread of transgenic DNA to wild and domesticated relatives raises a new set of issues for scientists and policymakers to consider. Unfortunately, we are still too often unable to quantify the risks of ecological damage associated with gene flow. This is due partly to the huge breadth of knowledge required to assemble a comprehensive risk assessment. For example, many scientists active in research on the mechanics of gene flow nevertheless lack a deep understanding of what is required to identify, characteri