

## Gene flow from GM crops

Gene flow has and will continue to occur between sexually compatible plant species in agricultural habits. What are the implications for growing genetically modified crops?

1. Cross-pollination occurs between sexually compatible species /crops. (1,2,3)
2. Likelihood of cross-pollination is determined by the proximity of sexually compatible crops/plant species and where there is synchronous flowering. (4,5)
3. Distance viable pollen can travel (6) is influenced by the dispersal mechanism and pollen longevity - both of which are species dependent. (7,8)
4. Pollination falls off rapidly with distance but that the distance at which pollination is zero is impossible to determine with accuracy. (9)
5. Consequences of transfer of novel genes from GM crops to weeds depend not only on physical distribution but on the nature of the gene and the biology and ecology of the recipient. (10)
  - o Herbicide tolerance unlikely to confer an advantage outside agricultural areas. (11)
  - o Insect resistance may confer advantage under certain conditions. (12,13)
6. Many plant species can be found both as a crop and a weed. Change in habitat may potentially result in the evolution of a weed from a cultivated plant or from a feral that is closely related to a cultivated species. (15,16,17,18)
7. Chloroplast transformation may reduce likelihood of gene transfer by pollen. (19) However, the potential for horizontal gene transfer may increase. (20)
8. Herbicide tolerance (HT) can develop by evolution and selection within weed populations continually sprayed with the same herbicide rather than by gene flow from a herbicide tolerant crop. (21,22)
9. GM herbicide tolerant plants are no more likely to be invasive in agricultural fields or natural habitats than non-GM counterparts. (23)

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