

## Notes on AgrEvo's genetically modified oil seed rape

1. Oil seed rape (*Brassica napus*) is well known for its ability to cross pollinate. Research in Scotland has found that the new genes can spread 2.5 km away from test sites<sup>1</sup>.
2. Oil seed rape has been shown to cross pollinate with several wild, weedy relatives of the brassica family. The foreign genes will inevitably enter the native gene pool through the creation of hybrids. Hybridisation has already been demonstrated in field experiments, between oil seed rape and wild radish<sup>2</sup>, wild turnip<sup>3</sup>, hoary mustard,<sup>2,4</sup> and mustard greens<sup>5</sup>.
3. These AgrEvo GM oil seed rape plants are engineered to be resistant to glufosinate, a potent broad spectrum herbicide. AgrEvo claim that the use of glufosinate resistant crops will reduce the use of herbicides and thus be environmentally beneficial. Any reduction in the total amount of herbicide applied on the GM crop would be attributable to the potency of glufosinate, and thus the toxic effect of herbicide applications may be even greater. There is evidence that glufosinate tolerant oil seed rape varieties do not show a decrease in the overall herbicide use in comparison to unmodified rape<sup>6</sup>.
4. AgrEvo hope to ensure the increased use of glufosinate through the commercialisation of GM glufosinate resistant varieties. At present glufosinate is used relatively infrequently in the UK (25 tonnes on 60,000 hectares according to MAFF). AgrEvo have increased production capacity for glufosinate in the US and Germany and expect sales to increase by \$560 million in the next five to seven years<sup>7</sup>, making it one of their 'linchpin products'.
5. When the gene conferring tolerance to glufosinate moves into weedy relatives or the resistant oil seed rape itself becomes a weed problem, farmers will find themselves having to apply more than one herbicide to 'clean' the field. AgrEvo agree, saying that 'the farmer can always control these resistant weeds with other products'<sup>8</sup>.
6. Glufosinate was initially refused approval by the UK Ministry of Agriculture, Fisheries and Food (MAFF) in 1984 due to the toxicity of the formulation<sup>9</sup>. The toxic effects of glufosinate on humans and animals have been indicated<sup>10</sup>, particularly affecting the nervous system. Glufosinate is soluble in water and therefore can be leached from the soil into groundwater, this is of particular concern as it is toxic to aquatic life.<sup>11</sup>
7. This variety of glufosinate resistant oil seed rape is the same variety which is being released in the government sponsored farm scale trials, which are the largest releases of GM crops ever in the UK. The scientific basis of these tests is fundamentally flawed<sup>12</sup>, and the government will offer no assurance that they will not press ahead with commercialisation of GM varieties before the tests are finished in 2002. Short term testing will not show up any long term effects of releasing a GM crop<sup>13</sup>.
8. Bees are the primary pollinators of oil seed rape<sup>14</sup>. Research has shown that DNA in pollen can remain in honey for seven weeks<sup>15</sup>.
9. The use of glufosinate resistant crops will allow farmers to apply this broad spectrum herbicide onto crops which would normally have been killed by the application. The result will be the loss of weeds which often grow amongst crops and are a source of food for small mammals and birds<sup>16</sup>.

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## References

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- <sup>8</sup> AgrEvo homepage: [www.agrevo.com](http://www.agrevo.com)
- <sup>9</sup> MAFF. Health and Safety Executive 1991. Advisory Committee on Pesticides Annual Report 1991. HMSO, London.
- <sup>10</sup> U.S. EPA. 1990. Estuarine invertebrate toxicity test. HOE 039866 technical data evaluation record. Cited in Cox 1996.
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- <sup>12</sup> Farm Scale Evaluations of Genetically Modified Crops, Comments by Friends of the Earth March 1999
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- <sup>15</sup> Eady, C., Twell, D., & Lindsey, K., 1995. Pollen viability and transgene expression following storage in honey. Transgene Research Vol. 4. p226-231.
- <sup>16</sup> Royal Society for the Protection of Birds. 1997. Comments on MAFF discussion paper "Weed Control on the Farm Management of Genetically Modified Herbicide Tolerant Crops".