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## **PRESS RELEASE**

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### **GM AND BIOTECHNOLOGY ESSENTIAL TO HELP DOUBLE GLOBAL FOOD PRODUCTION FOR RISING POPULATION**

Global food production must double by 2050, a plant breeding expert said today (Tuesday 20 July). There are six billion people in the world now and the population is set to rise to nine billion. “The food crisis will be with us in 15 years, maybe ten. We have doubled food production over the past half century, now we have to do it again. But this time we have to do it sustainably,” said Professor Mike Gale from the John Innes Centre in Norwich.

The current 1,800 million tons of cereals must be increased to three billion tons a year. “But we don’t have any more good land and we don’t have any more water and we have to use fewer chemicals,” warned Professor Gale. “At least half of these increases will have to come from improved varieties, especially varieties bred to tolerate drought and salt and be resistant to pests and diseases. We must also reduce our reliance on fertilisers and other chemical inputs.”

Biotechnology can both speed up the breeding process and provide the breeder with new genes, and GM is one of a range of techniques available. GM is most potent in providing the breeder with a variation not otherwise available in the crop or close relatives - such as insect resistant cowpeas in Africa, high pro-vitamin A ‘Golden rice’ in Asia and disease resistant bananas throughout the tropics.

Gene engineering, whereby the crop’s own genes are isolated, modified and replaced to produce specific desired effects, is another biotechnological GM-dependent solution. The semi-dwarf plant type that played such a major role in the ‘Green revolution’, by providing stronger wheat plants that put more energy into the grain rather than the straw, can now be achieved in any crop.

GM is not the only breeding solution, just as plant breeding is only part of the technological, sociological and political package that will successfully feed the world's population when it peaks. "However it is inconceivable that our breeders will meet the challenge without applying all the technologies we have to hand, and that must include GM," he said.

The food crisis is, of course, not expected to reach Europe but European policy is already having a huge impact on breeding programmes in developing countries, where farmers are concerned about access to European markets. Pressure is building though, as more countries, not just in the USA but increasingly in South America and China, grow varieties bred using GM.

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**For further information contact**

Elaine Snell – Tel +44 (0)20 7738 0424; mobile +44 (0)7973 953 794

[elaine.snell@which.net](mailto:elaine.snell@which.net)

Or from 18 – 22 July, BioScience2004 Press Office +44 (0)141 576 3146

**Notes to Editors**

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Professor Mike Gale FRS is the John Innes Foundation Emeritus Fellow at John Innes Research Centre in Norwich. He is a member of the Consultative Group on International Agricultural Research and Emeritus Professor of the University of East Anglia. He has been a member of the DTI Science Review Panel, part of the national GM debate. His research focuses on biodiversity and the genetics and breeding of wheat and millet.