# Is there a place for GM crops in a sustainable future?

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Author and journalist Mark Lynas and researcher and writer Claire Robinson go head-to-head.

# Mark

Agriculture today faces many challenges. In a world of seven billion people – a population which will grow to over nine billion by mid-century **– I’m sure you will agree that** there is no room for ideological rigidity when seeking sustainable and equitable ways to ensure food security for everyone. But **it seems to me that** anti-GM activists have latched on to one particular technology as ‘evil’ and refuse to consider any other possibility.

**I see** genetically modified (GM) foods as one of a variety of different options for technological innovation in agriculture. **In some contexts it can be** extremely useful in potentially eliminating the need for toxic pesticides to be used on crops **– I’m sure you will have heard of** the aphid-resistant wheat that researchers at Rothamsted are currently trialling, much to the ire of green activists. This is intended to reduce the use of toxic sprays.

A similar environmental motivation underlies the aim of several other public sector research institutes – including Teagasc in Ireland and the Sainsbury Laboratory in Norwich – to develop a blight-resistant GM potato. The greens are against this too, **despite the fact that** the introduced novel gene comes from another potato. Perhaps they think it is better that large-scale growers spray their potato crops 15 or more times every season with toxic fungicides. And no, organic is not the answer: organic growers use equally toxic copper sulphate, or simply watch the crop get devastated – as many did [in Britain] this summer.

**I hope we can both agree that** publicly funded, non-commercial, non-patented applications of GM technology aimed at reducing the use of toxic chemicals should be supported.

# Claire

Feeding the world is a challenge, but not because there isn’t enough food. We already grow enough for 10 billion people. Hunger is a result of poverty. That’s a political problem that GM crops can’t solve.

Even if hunger could be solved by increasing yield, GM crops don’t yield more, and often yield less, than non-GM crops, according to US government data. Yield **was never the point** of GM. Virtually all commercially available GM crops are engineered to survive being sprayed with herbicide or to express a pesticide, or both. GM herbicide-tolerant crops increased herbicide use by 174 million kilograms in the US in the first 13 years of cultivation.

A tiny initial reduction in chemical pesticides attributed to GM Bt pesticidal crops proved unsustainable as pests are now munching away on the very crops engineered to kill them. **It’s not surprising**: exposing a pest 24/7 to a pesticide – chemical or genetically engineered – is a recipe for resistance. Aphids will quickly get used to Rothamsted’s aphid-repelling GM wheat, as was found in studies on other GM plants that express the same chemical.

‘Publicly funded, non-commercial, non-patented’ GM crops that reduce chemical use may seem a nice idea. But public-private partnerships **mean that** while public money funds the research and development (R&D), the developed trait is sold to companies. Only patents make it attractive.

Rothamsted’s John Pickett has said he hopes the GM wheat project will ‘generate very good intellectual property for commercial development’. That **means** patents ­ not on the experimental crop line, but on the final commercial line generated. The herbicide tolerance gene in this wheat will be used because GM seed companies are agrochemical companies. Chemical-dependent patented seeds are their business model. Result: more herbicides.

**Solutions lie in** agro-ecology and conventional breeding, which outperforms GM, even in producing blight-resistant potatoes!

# *Now answer the questions for Part 1.*