

[Ten reasons to be cheerful, part 1: Food](#) [1]

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We are told there won't be enough food for our increasing numbers, and that millions in poorer countries will starve. In fact this will almost certainly not happen, and the world's future food supply is a source of optimism.

1. Food

It was Thomas Malthus (1766-1834) who popularized this view in "[An Essay on the Principle of Population](#) [3]." He stated that agricultural output increases in a linear (arithmetic) way, but that population does so in an exponential (geometric) way. This means that large numbers must starve.

The Malthus view has not been borne out by events. Our ability to use technology to increase food production has enabled food output to keep pace with population, even with the explosive growth of the 20th Century. The use of fertilizers, pesticides and herbicides has boosted production per acre in ways he could not imagine.

The Green Revolution between the late 1940s and the 1970s, led by Norman Borlaug, saw the development of high-yield crop varieties, plus changes in agricultural infrastructure, and is reckoned to have saved more than a billion people from starvation.

A second Green Revolution is coming about based on genetic modification. Desirable traits can be crossed between species, enabling plants to be bred that can overcome many of the limits of traditional agriculture. Plants have already been developed to resist herbicides so that weeds can be killed without affecting food crops. Even more exciting is the research under way to develop crop strains that will resist pests themselves without needing chemical assistance.

Researchers are developing crops that will thrive on marginal land, that can resist drought and temperature extremes, and that are saline tolerant. This will open up to agriculture huge areas of land not presently suitable for crops. Varieties are being produced that can fix atmospheric nitrogen and fertilize themselves in the way that legumes do. Others are under way that incorporate vitamins to supplement unbalanced diets and reduce the health risks caused.

Yet more research is being done to create varieties that yield more food and less waste, enabling greater output per acre. We will not need to cut down rainforests. Our future food production should easily outpace the population increase, overturning the Malthusian pessimism.

Environmentalists whose agenda is behaviour change have raised scare campaigns over GM foods, yet

GM crops have been in widespread use now for many years without adverse effects. Far from posing a hazard to our future well-being, they stand to make a huge and positive contribution to it.

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