

20 February 2009

To the editor of the Daily Mail (London)

Dear Editor,

On February 16<sup>th</sup> you published an article that claimed that studies being conducted with Chinese children by the inventors of *Golden Rice* in collaboration with the Chinese government are unethical. The article claimed these studies violated the Nuremberg Code that was developed after World War II to protect us from unethical human experimentation. We the undersigned find the article in serious deviation from the facts in a number of important ways. The story originates from dedicated anti-GM campaigners who will stop at nothing to block the adoption of GM crops. It is morally reprehensible that they are willing to allow millions of humans to die or endure avoidable blindness because of Vitamin A deficiency (VAD) in order to achieve their goal of a GM free world.

We would offer the following observations.

1. VAD kills 1-2 million people a year. Put in perspective, that is equivalent to two 9-11 attacks a day, or the same as the losses from the tragic December 2004 Tsunami every month. Since the development of *Golden Rice*, deaths from VAD have amounted to over 15 million (<http://www.gmobelus.com>)— a number that exceeds the dimensions of the Holocaust. The staggering impact of VAD has occurred in spite of massive vitamin supplementation programs —programs that are necessary and that have no doubt helped but they have for many reasons been unable to stem the tide of VAD.
2. *Golden Rice* contains beta-carotene that then is converted to Vitamin A in the body. The studies in question were being performed to determine how efficiently *Golden Rice* can reduce VAD mortality and improve human health. Children were selected for the study since they are the most vulnerable to the effects of VAD and suffer lifelong consequences. Children are in fact the target population of the humanitarian project for which *Golden Rice* is being developed. The studies were conducted according to the highest ethical standards. Protocols were approved by institutional review boards in the USA and China. They are in full compliance with NIH and Chinese government guidelines and the Nuremberg Code. All subjects benefited because they were given *Golden Rice*, or Vitamin A or spinach (which also provides beta-carotene) as positive controls.
3. The experiments were no more dangerous than feeding the children a small carrot since the levels of beta-carotene and related compounds in *Golden Rice* are similar. Contrary to the assertions published in the Daily Mail, beta-carotene itself is safe to consume at levels far in excess of those present in *Golden Rice*. The objections to these studies make as much scientific sense as objecting to giving the children a vitamin pill.

4. Were many lives not at stake here, we would find it more than mildly amusing that the very groups who complained in the past that GM foods were placed on the market without any studies in humans now protest with mock moral outrage when a study is conducted in humans. In this case it is necessary to demonstrate that *Golden Rice* supplies Vitamin A in humans.

5. The morally obscene antics in opposition to *Golden Rice* arise from a blind opposition to GM crops that fails to acknowledge the overwhelming scientific consensus that they are safe and efficacious—they ignore a substantial body of scientific literature and more than 12 years successful planting of these crops on over 1 billion hectares around the globe with no adverse affects on humans or the environment. The best available evidence supports the conclusion that GM crops are as safe as, or are safer than conventional and organic crops. To not deploy *Golden Rice* ignores the ‘*moral imperative*’ to use the technology to the benefit of the poor (Nuffield Foundation for Bioethics, 2004). All of this seems to have fallen on deaf ears and moral blind spots of Anti-GM groups.

At a time of increasing poverty globally, and reduced food security generally, all possible technologies capable of improving the quantity and quality of food should be embraced. All the scientific academies of the world, and many other authorities globally, have found no health or environmental problems associated with genetically modified crops.

Yours faithfully,

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