November 3 (revised Nov. 6), 2016
New York Times Public Editor
public@nytimes.com

Reference:
Hakim Danny (20161029) Doubts About the Promised Bounty of Genetically Modified Crops, New York Times New York 12 pp
http://www.nytimes.com/2016/10/30/business/gmo-promise-falls-short.html?_r=1 AND
http://www.ask-force.org/web/Yield/Hakim-Doubts-about-promised-bounty-GM-crops.20161029.pdf

We write to make you aware that a recent Times story on genetically improved crops ("Doubts About the Promised Bounty of Genetically Modified Crops," by Danny Hakim, October 29, 2016) erred in several important ways.

First, the article is based on a false premise: It asserts that genetically modified crops have not improved yields even though this is not what they were designed to do. They were designed to manage and mitigate some of the causes of crop loss, especially pre-harvest losses due to insect pests or weeds. Data and experience show they have been successful in this regard—and that by protecting against crop losses have in fact increased practical yields. The most thorough meta-analysis to date found that by safeguarding yields against well-known and frequently encountered threats, biotech crops have increased farmers' harvests by 22 percent, on average, while reducing pesticide use by 37 percent and increasing farmers' incomes by 68 percent. This is one of the reasons farmers have adopted GM seeds at rates not seen with any other major innovation in the history of agriculture, as ISAAA has documented.

Second, the article misrepresents the scientific literature by citing selected papers on yield impacts summarized in a recent National Academy of Sciences review, but without including essential context. Specifically, the article claims the NAS report finds no yield gains from biotech crops, which comes from Chapter 4 of the NAS report, but it fails to mention the work cited in Chapter 6 which specifically describes yield gains from herbicide tolerant maize in South Africa. Moreover, the *Times* article fails to mention the numerous publications by Graham Brookes and Peter Barfoot and the extensive literature they cite documenting yield benefits of transgenic crops.

Third, the *Times* article relies on the use of selected (incomplete and unrepresentative) data and inappropriate parameters in a way that distorts the picture. For example comparing the total use of pesticides in the US vs. France is inappropriate because the USA is so much larger than France. The correct parameter for comparison is not total usage but lbs/acre (or kg/ha). Wyoming weed scientist Andrew Kniss has used complete and representative data which document that biotech crops grown in the U.S. have contributed to significant declines in pesticide use, and that U.S. pesticide application rates remain significantly lower than in the EU, even in the (unrepresentative) case of France. The complete data also show clearly that the vast majority of European countries have seen significant increases in pesticide application rates during the relevant interval. Kniss' findings are strongly supported by the scientific peer reviewed literature. It is ironic to know that France and other EU countries import Bt corn

with massively lower mycotoxin levels from the US to mix American seeds with French conventional corn seeds in order to decrease the level of mycotoxins in the French corn. Indeed the threshold allowed in EU. is such that the French production shows a higher mycotoxin content than the authorized value in EU.

Fourth, the Times article ignores the verdict of the marketplace—namely that farmers, who must carefully weigh costs and benefits in buying inputs for their crops, continue to choose genetically improved seeds. If biotech improved seeds delivered no value to farmers, then why have 18 million farmers in more than 30 countries around the world adopted biotech improved crops at rates unmatched by any other agricultural innovation in history? And why would they continue to pay premium prices for them year after year? They do this because the seeds consistently increase their productivity.

At the end of the day, farmers adopt practices that maximize their profits, not their yields. Yields between continents are not expected to be the same given differences in climate and pests present in different growing regions, which require different management practices and thus affect the cost of production. Nevertheless, we find it impressive that Hakim considers corn yields to be equal on both sides of the Atlantic. The part that Hakim missed is that the US is getting equal corn yields to Europe, but is doing so with far fewer chemical inputs. That alone is a reason to celebrate GMOs.

These and other flaws in the Times story have been widely noted by experts in the field. (See Appendix A for a partial list.) We hope the Times will provide more accurate coverage of this issue in the future to avoid misleading readers.

Sincerely,

L. Val Giddings, Ph.D., Senior Fellow
Information Technology & Innovation Foundation, Washington, DC, USA

INDIVIDUALS (affiliation for identification only)

Prof. em. Klaus Ammann, Ph.D.
University of Bern, Monruz 20, 2000 Neuchâtel, Switzerland

Prof. Nina Fedoroff, Ph.D.
Pennsylvania State University

Alan McHughen, Ph.D.
Professor, Biotechnology and Genetics, UC Riverside, USA

Prof. Wayne Parrott, Ph.D.
Department of Crop & Soil Sciences, & Institute of Plant Breeding, Genetics and Genomics
University of Georgia, USA

Prof. Channa S. Prakash, Ph.D., Dean
College of Arts & Sciences, Tuskegee University, AL, USA

Prof. Dr. Agnès Ricroch,
AgroParisTech, University of Paris Sud, France

Professor Giovanni Tagliabue
Philosopher of life sciences, Como, Italy

Appendix A –Critical Responses to the Hakim Piece

American Soybean Association, "ASA to NYT: GMO Article Paints Incomplete Picture," November 1, 2016 at https://soygrowers.com/asa-to-nyt-gmo-article-paints-incomplete-picture/.

Anderson, Ken, "NYT Article on GMOs draws criticism," Brownfield Ag News for America, November 1, 2016 at http://brownfieldagnews.com/news/nyt-article-gmos-draws-criticism/.

Begemann, Sonja, "NYT Blasts GMOs on Yield, Pesticide Claims," AgWeb, November 1, 2016, at http://www.agweb.com/article/nyt-blasts-gmos-on-yield-pesticide-claims-naa-sonja-begemann/.

Berezow, Alex, "GMO Crops Attacked By Knowledge-Resistant NYT Journalist Danny Hakim," American Council on Science and Health, October 31, 2016 at http://acsh.org/news/2016/10/31/gmo-crops-attacked-knowledge-resistant-nyt-journalist-danny-hakim-10385.

Brookes, Graham, "Why Danny Hakim's New York Times GMO exposé misleads," Genetic Literacy Project, October 31, 2016 at https://www.geneticliteracyproject.org/2016/10/31/danny-hakims-new-york-times-gmo-expose-misleads/.

Chen, Eli, "Monsanto, Danforth officials dispute New York Times report on crop yields," St. Louis Public Radio, Oct 31, 2016, at http://news.stlpublicradio.org/post/monsanto-danforth-officials-dispute-new-york-times-report-crop-yields#stream/0.

Conrow, Joan, "Musings: The Right to Choose," Kauai Eclectic, October 31, 2016 at http://kauaieclectic.blogspot.com/2016/10/musings-right-to-choose.html.

Fedoroff, Nina, "Hakim's Effort to Skewer Biotech Crops in Sunday's NY Times," OFLaw, November 1st, 2016, at http://www.ofwlaw.com/2016/11/01/hakims-effort-to-skewer-biotech-crops-in-sundays-ny-times/.

Folta, Kevin, "Rehashing a Tired Argument," Illumination blog, Oct 30 and Nov 1, 2016, at http://kfolta.blogspot.com/2016/10/rehashing-tired-argument.html?m=1 and http://kfolta.blogspot.com/2016/11/some-actual-yield-data.html; republished at http://fafdl.org/blog/2016/10/31/new-york-times-attempt-at-a-nuanced-view-of-gmos-lacks-nuance/.

Fraley, Robert T. "Biotechnology makes a difference," The Huffington Post, 31 October, 2016 at http://www.huffingtonpost.com/entry/biotechnology-makes-a-difference_us_5817621be4b096e8706968ac.

Johnson, Nathanael, "What the NYT missed with big GMO story," GRIST, Nov 1, 2016 at http://grist.org/food/what-the-new-york-times-missed-with-its-big-gmo-story/.

Kniss, Andrew, "The tiresome discussion of initial GMO expectations," Control Freaks: Wyoming Weed Science in (almost) real time, Oct 30, 2016 at http://weedcontrolfreaks.com/2016/10/the-tiresome-discussion-of-initial-gmo-expectations/.

Miller, Henry, "The New York Times' Front-Page Screwup on 'GMOs,'" Forbes, Nov 2, 2016 at http://www.forbes.com/sites/henrymiller/2016/11/02/the-gray-lady-soils-herself-again/#335952593fc6.

Novella, Steven, "The Times Gets it Wrong on GMOs," NeuroLogica Blog, Oct 31, 2016 at http://theness.com/neurologicablog/index.php/the-times-gets-it-wrong-on-gmos/ .

Smith, Stuart, "New York Times Ignored GM Benefits," Nov 2nd, 2016, Western Producer at http://www.producer.com/2016/11/new-york-times-ignored-gm-crop-benefits/ .