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Letter

Hidden Attraction: Empirical Rationality in GMO Opposition

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Stefaan Blancke *et al.* [1] make the point in their recent article 'Fatal attraction: the intuitive appeal of GMO opposition' that their analysis of public opposition to GMOs 'is not intended to characterizing public worries in general as irrational'. It is indeed essential that debates concerning science, society, and development should take place in a framework of mutual respect and interest between citizens and scientists, rather than as a battlefield between rationality and irrationality. In this framework, as specialists of rational thought applied to extremely complex issues, scientists may have to bear the onus of initial understanding towards public worries and reactions [2], however badly formulated or 'unscientific' they may be. By contrast, the analysis of public worries on GMOs under three categories described as 'folk biology/essentialism', 'teleological and intentional thinking', and 'emotions/disgust' [1] puts a clear emphasis on the importance of irrationality in public opinion, and may lead to further antagonism and misunderstanding. This emphasis is all the more surprising because the contents of the article also refer to facts and pieces of evidence that can be construed as a rational basis for the social criticism of several biotechnologies, including GMOs. Moreover, the authors focus on the particular case of European societies, which they consider to be characterized by a high level of secularism and environmental activism. However, it would be fair to add that these societies have also enjoyed a high level of open society, secondary and higher education, and science information for a long time. In other words, at least as current societies go, the citizens of European societies can be fairly described as relatively well-informed on scientific discoveries, biotechnological developments, and socio-technological issues [2]. Moreover, in addition to education and the scientific and biotechnological literature, this type of information is often reported through mainstream mass media, and thus not exclusively through the channels of environmental activism. Among such issues, the impact of chemical pollution on the environment and on human health has been widely documented and broadcast to the general public [3]. Many citizens have therefore followed the sequence of events that led to awareness of the dangers of anthropogenic chemical pollution: an initial period where the impact of chemical dissemination was not taken into account or was ignored; an intermediary period of scientific endeavor to describe and acknowledge the extent and impact of chemical pollution; and a final period of stricter regulations on the production, use, and dissemination of anthropogenic chemicals. These citizens may have become aware that the initial period led, under the current state of policies and practices, to a type of socio-economical hubris where chemical usage did not consist in the dissemination of a limited number of small quantities of well-defined chemicals, but in the dissemination of vast quantities of thousands of chemical structures resulting in global impacts on the environment [3]. In other words, such information may strongly suggest to the general public that, whatever the intrinsic properties of a single or isolated biotechnological process, the interactions between biotechnologies, societies, industry, and capitalism add further levels of complexity, either spatiotemporal or quantitative, that should be taken into account from the very beginning of biotechnological applications. This awareness of complex interactions and consequences is explicitly mentioned in the work of Blancke *et al.* [1], with references to socioeconomic abuses and to herbicide-resistance issues, but the links between this awareness and GMO opposition are largely played down relative to the cognitive approach insisting on the categorization of irrational views. By contrast, it can be argued that the historical and informative experience of the public on biotechnological issues entails a degree of empirical skepticism that is based on empirical rationality. This empirical rationality on complex societal issues, which is part of the humanities and of the fabric of active citizenship, greatly differs from irrational intuitions and emotions, and should be frankly and duly acknowledged by scientists in works dealing with public opinion. Such acknowledgment may be helpful in challenging simplistic applications of biotechnologies in the absence of global societal and environmental analysis, and could even promote novel lines of investigation in the science community. As pointed out by Marc Van Montagu in a recent interview [4], the relationships between scientists and citizens have become more intricate and more complex, but this novel relationship, which reflects democratic and educational development, should also be viewed as a stimulating intellectual challenge for the scientist rather than as a conflict between rationality and irrationality.

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References

1. Blancke, S. *et al.* (2015) Fatal attraction: the intuitive appeal of GMO opposition. *Trends Plant Sci.* 20, 414–418
2. Marris, C. (2001) Public views on GMOs: deconstructing the myths. *EMBO Rep.* 2, 545–548
3. Persson, L.M. *et al.* (2013) Confronting unknown planetary boundary threats from chemical pollution. *Env. Sci. Technol.* 47, 12619–12622
4. Van Montagu, M. (2015) Interview with Marc Van Montagu. *Trends Plant Sci.* 20, 325–327