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Discussion

## Curiosities, nonsense, non-science and SRI

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The advocates of the system of rice intensification (SRI) have claimed both the world record for rice yield and the highest yields (by a substantial margin!) for any grain crop (Rafaralahy, 2002). This is curious because none of the usual information expected in support of these ‘fantastic yields’ was presented to support the claim. Absent were data concerning cultivar, experimental design, statistical errors, dates of planting and harvesting, soil types, fertilizer inputs, weed control, disease control, insect control, water management and the weather. Was the information withheld because they wanted to repeat the experiments and publish their incredible results in *Nature* or *Science*, before others beat them to it? Did they pause and wonder if they had discovered ‘super’ rice with a yield potential beyond that of any known grain crop? Oddly, the answer to both of those questions is no. Perhaps it escaped their notice that the energy required to achieve such a yield is well beyond the thermodynamic capabilities of plant photosynthesis and crop

use of solar energy. Their carelessness with ‘discovery’, the pinnacle of scientific achievement, was matched only by their indifference to the commonly accepted protocols and principles of agronomic science (Sinclair and Cassman, 2004).

Like most advocates of nonsense, Stoop and Kassam (2004) suggest that it is the role of scientists to seek verification and confirmation of the SRI. They seem unaware that every genuine test of a theory, or a hypothesis, is an attempt to falsify it (Popper, 1989). Their sole test of the validity of any investigative work concerning SRI is whether it confirms their ideas. Indeed, in their letter they focus on claims that the work critical of SRI (Dobermann, 2003; Sheehy et al., 2004; Moser and Barrett, 2003) is flawed for not including a long list of mysterious components or, worse, they suggest that the authors and the ‘anonymous’ referees are part of a conspiracy of ignorance or vested interests. Such claims are not unusual outside the community of genuine scientists. The criticisms of Stoop and Kassam are not new, and the same comments occur repeatedly when members of the general public are disappointed that scientists do not eagerly pursue unsubstantiated, miraculous observations (Park, 2000).

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No doubt the admirers of SRI will continue in their advocacy and some funding agencies will waste money by diverting it from hypotheses developed with logical consideration of the relevant theory and substantive preliminary experiments. Eventually, SRI will go the way of other non-science and disappear into obscurity. The lesson of this exchange is how tenuous, and special, is the role of scientists in helping societies to invest wisely in the pursuit of knowledge and technological advances. This role is vital to support sustainable development—especially for the low-income rural population of developing countries that would benefit most from breakthroughs in agronomic technologies that increase productivity and reduce costs.

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