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Nano in the future of crops

The first thing we read on the webpage of the 'Zero hunger' Sustainable Development Goal of the United Nations is that the number of undernourished people has roughly halved in the past 20 years. However, this perhaps surprising piece of good news is followed immediately by the notion that almost a billion people still live in conditions of insufficient nutrition. There is more. The increasing population, as well as changes in the environment and higher demands of energy and water, are bound to put increasing stress on food production and distribution.

Achieving provision of food for the world population requires efforts of different types, including changes in behaviour, reduction of waste, increased preservation and international intervention, to name just a few. Arguably, however, it all starts with food production, which should increase in a sustainable fashion — that is, without

putting extra strain on the environment and on energy demands.

We have reason to believe that nanomaterials could play an important role in the future of agriculture, especially in the production of crops, and the articles included in this Insight illustrate some of the most important opportunities of nanotechnology in smarter food production and preservation, as well as the challenges in technology and those posed by public perception and the lack of proper regulation.

Nano-enabled agriculture is still in its infancy but it is an exciting and challenging area that will develop fast in the near future, especially if the right emphasis is given to understanding the fundamental interactions between engineered nanomaterials and plants.

Fabio Pulizzi, Chief Editor

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