

Zinc crops 2007: improving crop production and human health

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Zinc (Zn) deficiency is recognized as a serious threat to both crop production and human health globally. It has been estimated that half of the cereal-cultivated soils have insufficient Zn to support high crop yields and to provide grains of high nutritional quality. As a result, Zn deficiency in humans tends to be prevalent in regions with Zn-deficient soils, particularly in the developing world. Currently, one-third of the world population is at risk of Zn deficiency causing severe health complications, such as impairments in physical development, immune system and brain function (Hotz and Brown 2004). Continuous reliance on high proportion of cereal-based foods with low amount and availability of Zn appears to be the major reason for the widespread occurrence of the Zn-deficiency problem in humans. Enrichment of cereal grains with Zn through both genetic (e.g., breeding) and agronomic (e.g., application of Zn fertilizers) biofortification is, therefore, a high priority area of research, and will contribute to minimizing Zn-deficiency-related health problems in human populations (Bouis 2003; Cakmak 2008).

The Zinc Crops 2007 Conference, held in Istanbul, Turkey, on May 24–26 in 2007, has been organized to

review and discuss the latest knowledge and best agricultural practices in addressing Zn deficiency and its impact on global crop production and human health. Distinguished keynote speakers have been invited to deliver speeches on the following conference topics:

- Human Nutrition
- Soil and Crop Management
- Zinc Fertilizers and Crop Nutrition
- Plant Physiology
- Genetics and Molecular Biology

The Zinc Crops 2007 conference provided a valuable opportunity for 180 scientists from 36 countries to present their work, get informed about the latest research developments and to enhance the international networking and collaboration. The conference featured 40 oral and 108 poster presentations. The extended two-page abstracts of all presentations are available at <http://www.zinc-crops.org> and <http://www.fertilizer.org/ifa/>. One of the most important issues presented and discussed at the conference was the role of soil and crop management approaches and exploitation of genetic variation in biofortification of staple food crops with Zn to meet daily Zn requirements of humans. Impressive progress is being made in both biofortifying food crops with Zn and eliminating the Zn-deficiency problem in crop plants by using cost-effective approaches such as combined soil and foliar application of Zn fertilizers. It was emphasized that these approaches should be integrated into the on-going nutrition intervention programmes

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designed to reduce the extent of Zn deficiency in humans. At the end of the conference, session chairs have discussed the research areas that were not covered during the conference. As a future research area, special attention needs to be paid to determining the chemical forms of compounds in edible plant parts that either promote or inhibit Zn bioavailability to humans and the role of subsoil Zn deficiency on the ability of plants to withstand biotic and abiotic stresses in the subsoil rooting zone.

This conference has been co-organized by the International Zinc Association (IZA: <http://www.iza.com>) and International Fertilizer Industry Association (IFA: <http://www.fertilizer.org>) in cooperation with the Sabanci University (www.sabanciuniv.edu/eng/) and HarvestPlus (www.harvestplus.org), a Challenge

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