NUTRIENTS ARE ESSENTIAL FOR HUMAN HEALTH

Fertilising Crops to Improve Human Health

Fertilizer Use and Functional Quality of Fruits and Vegetables by John Jifon, Gene Lester, Mike Stewart, Kevin Crosby, Daniel Leskovar and Bhimanagouda S. Patil.

Part 08

Fertilisers & Human Health
An 8 Part Series

Main Message

Previously the many initiatives aimed at securing an adequate food supply have been focused on improving crop yield. The important issue of also capturing the nutritional and health benefits of the foods produced has been missing.

Scientific evidence, from numerous sources, has demonstrated that targeted crop nutrition fertiliser practices can not only increase productivity and market value, but health-promoting qualities as well.

Plant-derived foods are major components of staple diets around the world, and play a crucial role in the wellbeing of human beings. They provide the essential nutrients that serve as substrates for energy, growth, and development.

The role of nutrition in disease prevention and healthy living is now receiving considerable attention.

The central role that fertilisers play in addressing the global food security problem is irrefutable.

RLF-treated Cherry Tomatoes, Dalian,Liaoning, January 2019

Key Points

- Fertiliser management represents a sustainable and inexpensive complement to traditional practices for improving the human-health properties of foods.
- Enhancing the human-health quality of foods through carefully-planned crop nutrition practices can be an effective dietary approach for enhancing the health, wellbeing and productivity of human beings.
- Fertiliser management practices have the potential to improve food supplies and reduce disease incidences and associated health care costs across the globe.
- The role of nutrition in disease prevention and healthy living is now receiving considerable attention.

> "We are facing a new nutrition reality. We can no longer characterize countries as low-income and undernourished, or high-income and only concerned with obesity. All forms of malnutrition have a common denominator – food systems that fail to provide all people with healthy, safe, affordable, and sustainable diets. Changing this will require action across food systems – from production and processing, through trade and distribution, pricing, marketing, and labelling, to consumption and waste. All relevant policies and investments must be radically re-examined."
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> Source: Dr Francesco Branca,
> Director of the Department of Nutrition for Health and Development
> World Health Organization

RLF-treated Watermelon, Henan Province, May 2017

RLF. 25+ Years of Plant Nutrition.

RLF Specialty Liquid crop nutrition fertilisers have been developed, manufactured and continually refined over a period of more than 25 years to a position today where our products are targeted to provide the nutrition needs of any particular crop, or for any particular deficiency.

RLF's Technical Team are constantly rethinking fertiliser regimes and practices so as to enhance the nutritional benefit of the crops and produce for the consumer. Its Integrated Fertiliser Management practice, based wholly on plant physiology – as well as the added benefit of time and economic efficiencies for the farmer – has been proven by practices such as:

By Priming the Seed. The young plant (embryo) gets its first signal of having sufficient phosphorus when the seed imbibes water. Later, as the radicle grows into a developing root system, the second signal as to the yield potential by the early completion of tillers 1 and 2 is perceived. This is an important start.

By Foliar Application of all Essential Nutrients. It is well known that the root uptake of phosphorus is some 10% - 20% of the season's input. This contrasts with an efficiency of some 80% for foliar-applied phosphate. Foliar uptake requires half of the plant's energy as compared to soil uptake.

Complete Scientific Review Extracts are:

From: ***Fertilizer Use and Functional Quality of Fruits and Vegetables*** *by John Jifon, Gene Lester, Mike Stewart, Kevin Crosby, Daniel Leskovar and Bhimanagouda S. Patil, Chapter 8, Fertilizing Crops to Improve Human Health: A Scientific Review, October 2012 (ISBN: 978-0-9834988-0-3).*

Fertilizing Crops to Improve Human Health: A Scientific Review, is a joint publication by the International Plant Nutrition Institute (IPNI) and the International Fertiliser Industry Association (IFA).

Many initiatives aimed at securing an adequate food supply have focused primarily on improving crop productivity and market quality, thereby missing the opportunity to capture the nutritional and health benefits of foods.

Scientific evidence from numerous sources has demonstrated that judicious fertilizer management can increase productivity and market value as well as the health-promoting properties of foods.

The link between fertilizer management and phytonutrient concentrations in fruits and vegetables is becoming much stronger. Fertilizer management represents a sustainable and inexpensive complement to conventional breeding and biotechnology for improving the human-health properties of foods.

Plant-derived foods are major components of staple diets around the world, and play a crucial role in the wellbeing of human beings. They provide the essential nutrients (water, carbohydrates, protein, fats, minerals, and vitamins) that serve as substrates for energy, growth, and development (Lester, 1997; Kushad et al., 2003; Liu et al., 2003). Plants also synthesize and/or accumulate a diverse collection of minerals and complex secondary metabolites collectively known as phytonutrients, which have been associated with good health, disease prevention, and wellbeing (Croteau et al., 2000; Kim et al., 2010; Prior and Cao, 1999).

The role of nutrition in disease prevention and healthy living is receiving considerable attention, in part because of the need for alternatives to conventional strategies of disease management, and the potential for reducing health care costs through nutrition-based disease prevention programs (Milner, 2000; Bidlack, 1996; Tucker and Miguel, 1996).

Research is also needed to characterize the caloric and phytonutrient contents of the vast majority of edible, non-staple food crops, and farmers should be encouraged to focus not only on yield, but also on nutritional and health benefits of produce. Nevertheless, enhancing the human-health quality of foods through carefully-planned fertilizer management practices can be an effective dietary approach for enhancing the health, wellbeing, and productivity of human beings.

The central role that fertilizers play in addressing the global food security problem is irrefutable. The compelling evidence linking diet and health presents a unique opportunity for redefining global agricultural food policies to promote the production of foods rich in a wide variety of phytonutrients. This has the potential to improve food supplies and reduce disease incidences and health care costs globally.

- Fertilizer management represents a sustainable and inexpensive complement to conventional breeding and biotechnology for improving the human-health properties of foods.
- Enhancing the human-health quality of foods through carefully-planned fertilizer management practices can be an effective dietary approach for enhancing the health, wellbeing, and productivity of human beings.
- Fertilizer management practices have the potential to improve food supplies and reduce disease incidences and health care costs globally.
- The role of nutrition in disease prevention and healthy living is now receiving considerable attention.