



The science of human nutrition changes rapidly. Its complexity is growing, branching into emerging disciplines including nutritional genetics and nutrigenomics. These new fields of study link people's genetic make-up to their nutritional requirements. They could change your life!

Nutritionists have already begun providing different advice for different ages and stages. Young children need frequent small servings to get enough energy. Women of child-bearing age have particular needs for iron and folate. Men and women over 50 need more vitamin D. Much more remains to be learned about genetically-specific nutritional requirements. The science of nutrigenomics strives to identify those requirements by studying the genome.

There are two reasons why scientists in plant nutrition need to pay attention to nutrigenomics.

The first is its similarity in principle to plant nutrition. The "right food for the right person" is analogous to crop management practices supplying the "right nutrient at the right rate, time, and place." Best management practices ensure that each plant genotype gets the amount of nutrients to which it has potential to respond.

Second, the nutrition of plants influences the nutrients they contain and provide. Science has uncovered effects of potassium on soybean isoflavones, effects of phosphorus and potassium on tomato lycopene, and effects of nitrogen on carotenes and Vitamin A. Much more remains to be discovered, and continued research on plant genetics and genomics will have an influence as well.

As a generalization, good plant nutrition produces food with good nourishment. But producers in the future may be called on to do more, producing fruits, vegetables, grains, pulses, and oilseeds with very specific levels of particular health-functional compounds, or nutraceuticals.

Dr. Peter Jones, Director of the University of Manitoba's new Richardson Centre for Functional Foods and Nutraceuticals, states: "Nutrigenomics is the way of the future. It will define a person's genetic susceptibility to respond positively, or not, to a given nutraceutical."

Nutrigenomics is not going to eliminate the need to eat. Likewise, plant genomics is not going to eliminate the need to fertilize. Both are aiming to enhance the effectiveness and efficiency with which nutrients are used. Both are promising fields for future research. The needs for and rewards from these kinds of science will be tremendous.

Dr. Tom W. Bruulsema
Northeast Director, IPNI
E-mail: tom.bruulsema@ipni.net