



## Introduction to International Year of Soils Special Issue

Each of us has a close association with soil each day, but we rarely stop to consider its importance. In fact, if there were no soil, there would be no life on earth! In recognition of the essential role that soils play in sustaining our water, air, and food, the United Nations has declared 2015 to be the International Year of Soils.

The importance of soils is central to the mission of the International Plant Nutrition Institute (IPNI), which is to promote responsible management of plant nutrition for the benefit of the human family. Soils and their ability to support adequate agricultural production will play a key role in accomplishing our goal. We are pleased to devote this issue of Better Crops to highlight a few key areas related to the essential role of soil.

The fundamental link between soil and food security is inescapable. Throughout history, fertile and productive soils have supported healthy and flourishing societies. The food we grow to provide energy, proteins, vitamins, and minerals depends directly on the condition of the soil.

The majority of soils in the world require some degree of improvement before crops can reach their full yield potential. Fortunately, we live in an age where we understand these limiting factors. But implementing strategies to overcome them remain a challenge in many parts of the world. Soil degradation inevitably occurs when soils are neglected, leading to declining crop yields and a drop in farmer prosperity. Poor nutrient management is a major factor leading to soil degradation.

The ability of soils to perform crucial air and water services, and to support plant growth relies on many unseen, but vital processes. Plant roots grow in an incredibly complex soil environment that teems with soil organisms. There remains much to learn about this vital linkage between plant roots and the soil microbial community. The role of soils in providing the chemical, physical, and biological environment where roots can support healthy plant growth also is becoming better appreciated.



Proper care of soil resources allows the maximum amount of food to be produced on an area of land, thereby conserving additional land from being used for cropping. This concept of sustainable intensification requires careful application of stewardship and conservation techniques. Selection of specific management practices for soil protection will consider acceptable social, environmental, and economic outcomes.

When soils are lacking in any of the essential plant nutrients, they cannot support healthy crop growth and reduced yield and quality will result. There is no longer good reason for nutrient shortages to hinder food production with our advanced knowledge of plant nutrition and nutrient management, and with the abundance of excellent fertilizer materials. However, plant nutrients need to be used with appropriate stewardship techniques. IPNI has adopted the educational framework of the 4R's (Right Source, Right Rate, Right Time and Right Place of nutrient application) to provide guidance to nutrient stewardship decisions. Implementing the 4R principles is the application of precision agriculture concepts of using only the specific nutrients required in each part of a field.

Comprehensive soil stewardship practices must be more widely adopted in order to meet the food needs of a growing global population. IPNI remains committed to this goal by continuing to lead research and educational efforts on soil stewardship that result in continued improvements in plant nutrition. **BC**

Dr. Robert Mikkelsen  
IPNI Vice President, Communications

Throughout 2015, IPNI will be featuring resources related to the International Year of Soils online at <http://info.ipni.net/IYS2015>. Please check back regularly for updates.