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Plant Nutrition TODAY
Better Crops, Better Environment...through Science

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# YEAR OF SOILS: 4R NUTRIENT STEWARDSHIP AND SOIL MANAGEMENT

**This year was designated as the International Year of Soil.** This recognition gives us an extra opportunity to reflect on the importance of soil as the basis for plant growth, healthy animals, clean water, and maintaining life on earth.

**In recent years, much of the fertilizer industry has embraced the principles of 4R Nutrient Stewardship as a way that farmers can maximize their yields, improve nutrient efficiency, and reduce environmental impacts.** This involves selecting the right source of nutrient, added at the right rate, applied at the right time, and put in the right place. Adopting the correct set of 4R principles requires planning, management, and flexibility to meet local challenges.

**It is important to remember that 4R Nutrient Stewardship is not a single set of practices that stand alone in achieving these economic, environmental, and social goals.** Careful nutrient management must be accompanied by a package of other production and conservation techniques to be successful.

**A sophisticated jet airplane cannot launch into flight if it lacks an engine or is missing the jet fuel.** Similarly, successful modern crop production requires all the components to work together to be successful. Modern nutrient management practices must be accompanied by other locally appropriate conservation approaches.

**The concept of "Soil Fertility" integrates many factors** such as soil physical properties (e.g., soil texture, structure, water, and air), biological properties (microorganisms and organic matter), and chemical properties (nutrient availability, pH). Clearly the 14 essential plant nutrients supplied from the soil are a vital part of growing a healthy plant that produces high yields. Despite their irreplaceable nature, the presence of an adequate nutrient supply does not alone make a fertile soil.

**4R practices are not confined to only inorganic fertilizer, but they are applicable for both inorganic and organic nutrient sources.** Organic and mineral fertilizers complement each other and best results for both crops and soil commonly occur when they are used together. For example, there is plenty of evidence that proper fertilization will commonly increase soil organic matter or at least slow its loss in cultivated soils compared with using no fertilizer.

**As the end of the International Year of Soil draws near, remember the essential role that plant nutrients play in sustaining soil productivity.** Proper 4R-based nutrient stewardship clearly has a positive contribution in this effort. But nutrient management is only one piece of the solution to maintaining our precious and irreplaceable soil resource.

**Let's make 4R Nutrient Stewardship more than a slogan.** It needs to be implemented into a complex and continually changing conservation-based farming landscape that wisely preserves soil for generations to come. The conclusion of the International Year of Soil prompts a renewed reflection of the fundamental role of soil and the need for wise nutrient management.

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