



Defining 4R Nutrient Stewardship for African Agriculture

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The 4R Nutrient Stewardship concept provides principles on the best way to manage fertilizers and other organic sources of nutrients. It consists of applying the Right Source of plant nutrients at the Right Rate, at the Right Time, and in the Right Place. By getting these four components of nutrient application “right,” farmers can increase their crop yields and incomes, prevent depletion of soil nutrients, and minimize nutrient losses and damage to ecosystems.

Nutrient management, to be considered “right,” must support the goals of farmers and others. The farmer is the final decision maker in selecting the practices—suited to local site-specific soil, weather, and crop production conditions, and socioeconomic conditions—because they are best positioned to judge their practicality and observe their efficacy. Approaches for implementing 4R management practices should improve the capacity of farmers to adapt the Right practices to their local conditions. “Right” management also supports broader socioeconomic goals, including food security for people locally and regionally, who benefit from more abundant and better quality food in the marketplace, as well as a cleaner environment. It may also consider other socioeconomic benefits, including choices that make better use of local human resources, improve social harmony, and better balance gender equity.

The principles for the Right management practices of fertilizers have been developed from research conducted over many years. The principles are similar globally, but how they are put into practice locally varies depending on specific soil, crop, climate, weather, economic, and social conditions. Examples of 4R practice choices are presented in Table 1. The choice of the right combination of practices at the farm level should be guided by practical considerations of the cropping systems, cost and availability of nutrient sources, labour and level of mechanization.



Table 1. Examples of 4R practices

The Four Rights (4Rs)				
	Source	Rate	Time	Place
Examples of Practical Choices	Commercial Fertilizer Livestock manure Compost Crop residues	Test soils for nutrients Calculate economics Balance crop removal Yield target	Pre-plant At planting At flowering At fruiting	Broadcast Band Foliar application Variable-rate application

