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Potassium: A Newcomer to Soil Health and Sustainability Discussions?

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Plant acquisition of soil potassium relies on many processes in the rhizosphere. Understanding these processes better is essential for creating improved practices. At stake is human health. Citizens of many countries have potassium deficient diets that increase both health risks and health care costs. Solving the human potassium nutrition problem requires sustainably managing potassium in soils to produce potassium-rich foods people will routinely eat. Research has shown that soil mineralogy strongly influences potassium behavior in soils and affects the accuracy with which we can assess both the quantity of plant-available potassium and how long soil supplies will last. Routine soil testing methods can miss important pools of plant-available potassium. They also inadequately assess potassium transitions from one pool to another, such as the movement of potassium into interlayer positions of vermiculite. Microbial and fungal communities in the rhizosphere also contribute to plant-available potassium, yet their impacts are just beginning to be understood. Unraveling these complex interactions of factors in the rhizosphere is important to improving assessments of soil fertility and maintaining that fertility at sustainable levels.



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