TABLE 2. GUIDELINES FOR EVALUATING EXTRACTABLE MINERALS IN SOILS

Concern	Parameter	Chemical Symbol	Low When Less Than or Equal to:	High When Greater Than or Equal to:
Extractable Macronutrient Anions	Phosphorus, Olsen (7)	P	10 ppm	*50 ppm* (8)
	Phosphorus, Bray1 (7)	P	10 ppm	*25 ppm*
Extractable Macronutrient Cations	Potassium (9,10)	K	120 ppm	400 ppm
	Magnesium	Mg	120 ppm	-- (11)
	Calcium	Ca	600 ppm	--
	Sodium	Na	--	690 ppm
Extractable Micronutrient Cations	Iron	Fe	5 ppm	70 ppm
	Manganese	Mn	4 ppm	50 ppm
	Copper	Cu	0.3 ppm	2.5 ppm
	Zinc	Zn	0.5 ppm	6 ppm
Extractable Micronutrient Anions	Molybdenum	Mo	0.05 ppm	0.4 ppm

7. P extracted with both Olsen & Bray1 are closely correlated with P uptake & plant growth, except where a a soil is rich in carbonates. In these cases Olsen-P is much more closely correlated with plant responses.
8. Guideline values in gray text have a questionable degree of confidence associated with the source.
9. Actual K availability may vary with cation exchange capacity (e.g., 50 ppm K for 2 meq/100 g to 350 ppm K for 30 meq/100g).
10. The prominent type of clay in a soil and its capacity to fix potassium effects potassium availability. Potassium fixing clays: illites, vermiculites, and chlorites. Non-fixing clays: montmorillonites and kaolinites. In some soils of the San Joaquin series, potassium fixing vermiculite occurs in coarser soil particles (i.e., silt, very fine sand, & fine sand).
11. A dash (--) indicates there are no known guidelines currently available or that guidelines are not necessary because problems are not known to exist.

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