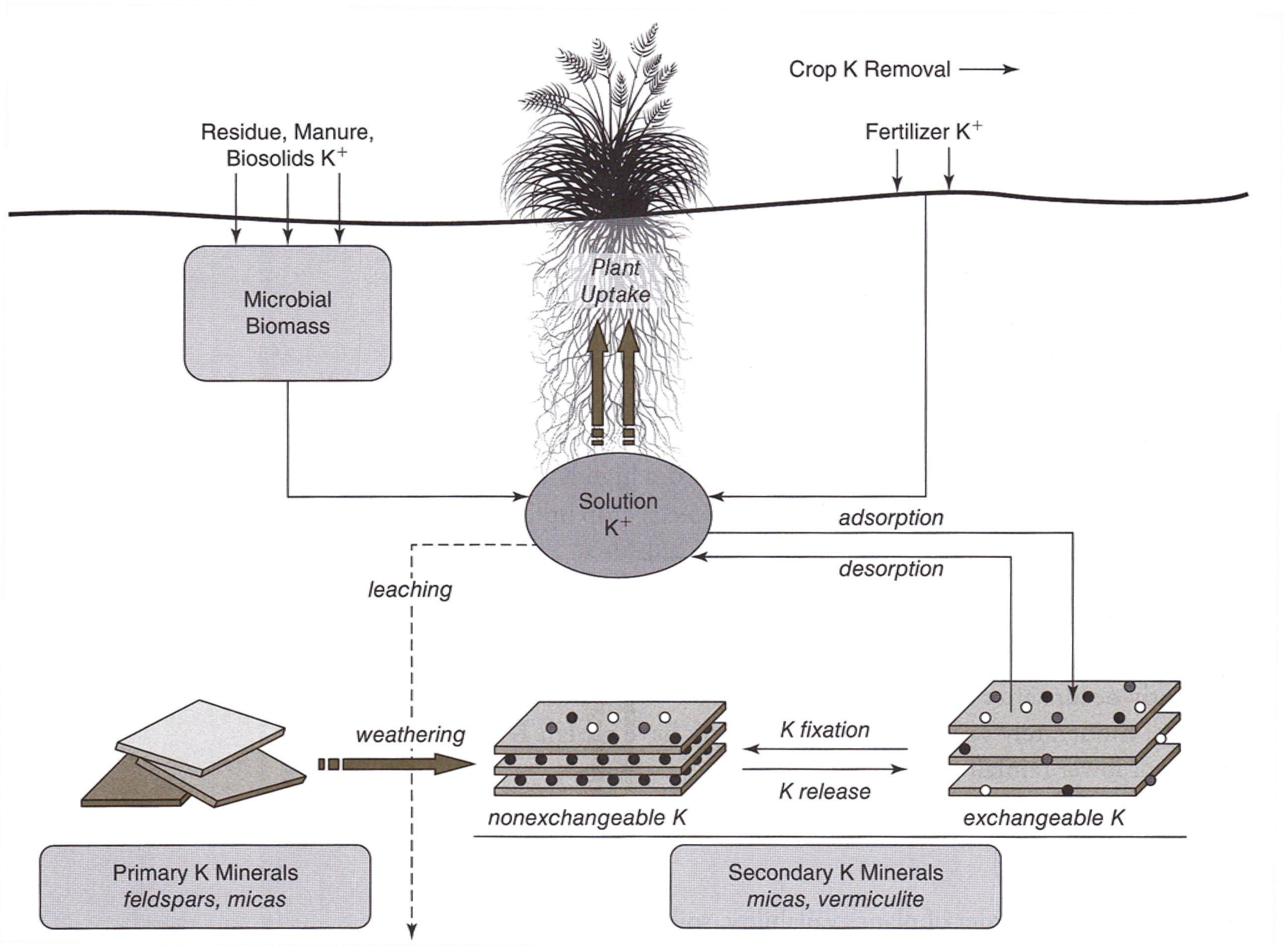


# Potassium cycle in soil



Listed in increasing order of plant availability, soil K exists in four forms:

- mineral 5,000–25,000 ppm (0.5–2.5%)
- nonexchangeable 50–750 ppm
- exchangeable 40–600 ppm
- solution 1–10 ppm

Mineral K accounts for 95–98% of total soil K, whereas slowly available (nonexchangeable) and readily available (exchangeable and solution) represents 1 and 0.02–2%, respectively. K cycling or transformations among K forms in soils are dynamic. As K is removed by crop uptake and leaching, there is a continuous but slow transfer of K from minerals to exchangeable and slowly available forms. With application of fertilizer K, some reversion to slowly available forms can occur.

Exchangeable and solution K equilibrate rapidly, whereas nonexchangeable K equilibrates very slowly with exchangeable and solution K. Transfer of K from mineral to more available forms is extremely slow in most soils, and this K is essentially unavailable to crops during a single growing season, but slowly available K resupplies solution and exchangeable K.