

Anions

NO_3^- , SO_4^{2-} , PO_3^{3-}

Solubility.....

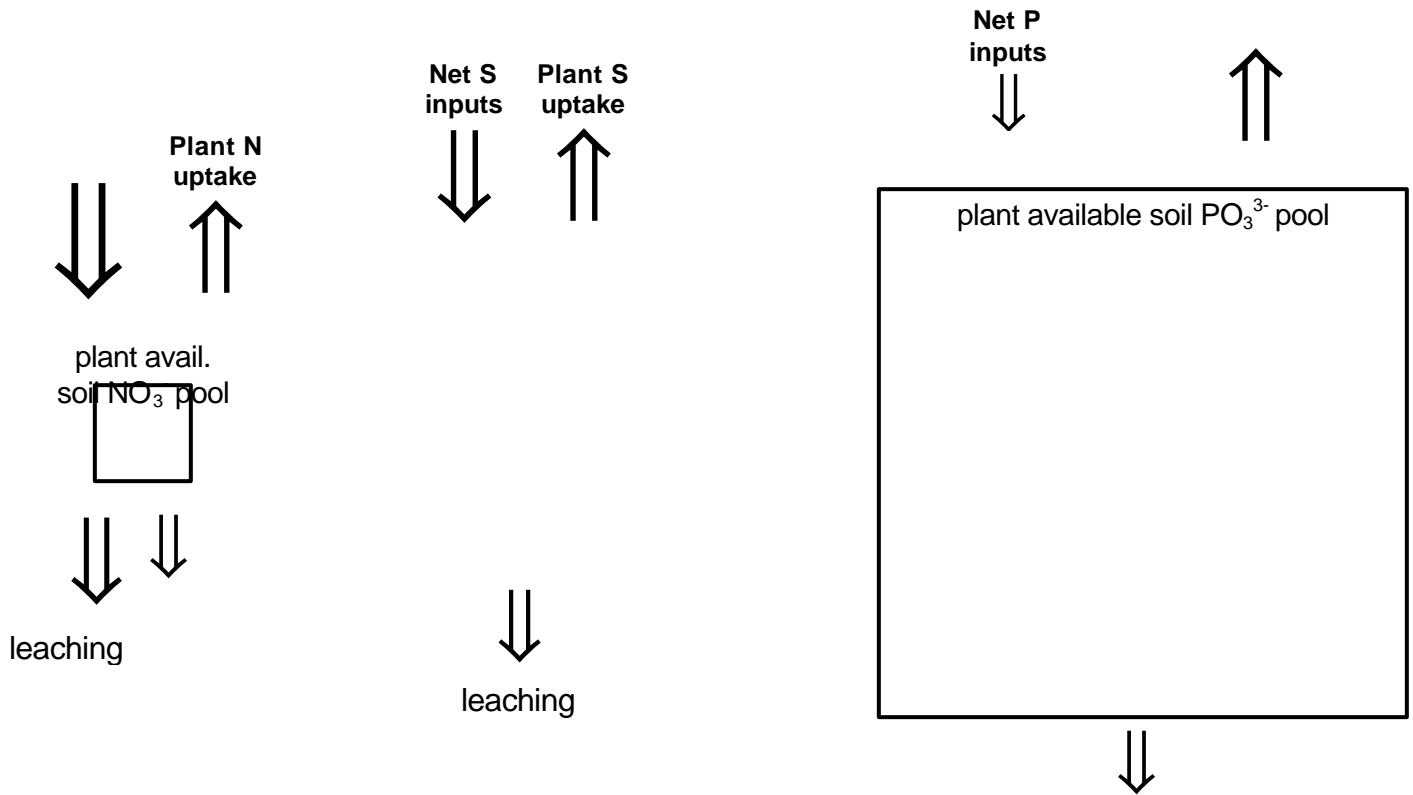
comparative nutrient balance

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Generalization

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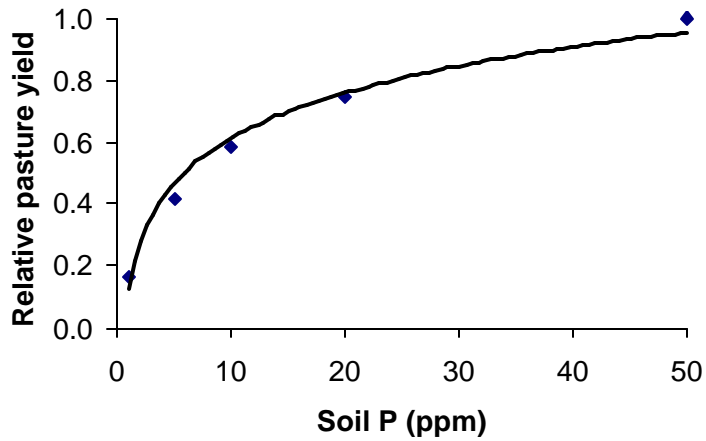


Sulfur

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Phosphorous

- Essential for plants and animals:
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- More important for
(grasses have a finer root system, resulting in higher root surface area, hence more competitive for most nutrients)
- soil concentrations
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	MW		
P	30.97	61.94
O	15.9994	80.00	
		<hr/> 141.94	

- in forage

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- Grazing removes P approx. uniformly (not totally) from pasture and concentrates it as solid manure in piles comprising less than 5% of the land area. This can result in a lower efficiency of P cycling with grazing.

Homework Question - Calculate a farm P balance

A confinement dairy farm has 500 cows each producing 20,000 lb milk. The farm has 90 acres in forage (alfalfa & corn silage) producing 12,000 lbs/acre/yr. No P fertilizer is used.

- a) calculate how much purchased forage is required, and how much P is imported onto the farm (assume each cow consumes 10,000 lbs forage/year and forage = 0.3% P)
- b) calculate how much P is exported as milk (assume milk = 0.1%P)
- c) effluent from the cows is collected and spread over the farm. What is the P application rate (assume all imported P ends up as effluent P, with no leaching losses)?
- d) What would the soil P level be after 20 years (assume 9 lb/acre of applied P will increase soil P by 1 lb/acre, initial soil P = 22 lb/ac, no leaching losses)