

AGRY 515: Plant Mineral Nutrition

Potassium and Phosphorous Assimilation & Function

Powerpoint file: KPSAssim&Funct_Slides_2008

Potassium

Where is K

Cytosol - metabolic pool

Vacuole - osmotic pool

Metabolic Roles (Fig. 1)

Enzyme activation

Protein Synthesis

Photosynthesis (Fig. 2)

Osmoregulation (Fig. 3 – 5)

Cell extension

Stomatal movement

Photonastic responses

Phloem transport

Cation / Anion balance.

Deficiency Symptoms

Toxicity??

Phosphorous

Where is P

Compartmentation

Regulatory role of P_i

Structural Role (Fig. 6, 7)

Nucleic acids

Energy Transfer (Fig. 8)

ATP

Deficiency symptoms (Table 1)

Sulfur

Similarities/Differences with N assimilation (Fig. 9, 10)

Reduction & Incorporation

Unreduced Use

Reformation of SO_4^{2-}

Regulation of Assimilation

Metabolic Functions

Amino Acids

Proteins
Redox Reactions
Lipids
Phytochelatins
Osmotic Function
Deficiency Symptoms