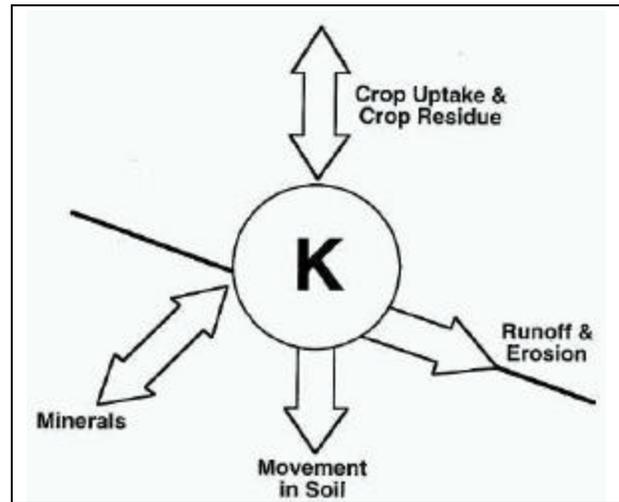


USDA NRCS
 Natural Resources Conservation Service
Conservation Across America
Potassium Form and Function
 Job Sheet - 590



UNDERSTANDING FERTILITY AND FERTILIZERS

POTASSIUM (K)

Function:

The amount of K in plant tissue usually ranges from 1 to 4% on a dry matter basis. Enzyme activation is the most important function of K in plants. These enzymes are most abundant in the tissues of the growing points of roots and stems. K is also very important in the uptake of water by plant roots. Good K fertilization results in better drought tolerance of most plants. Plants require K to form high-energy compounds, which provide the energy source for the plant. The production and transport of sugars in plants is also enhanced by potassium. Total nitrogen uptake and formation of protein is dependent on adequate K.

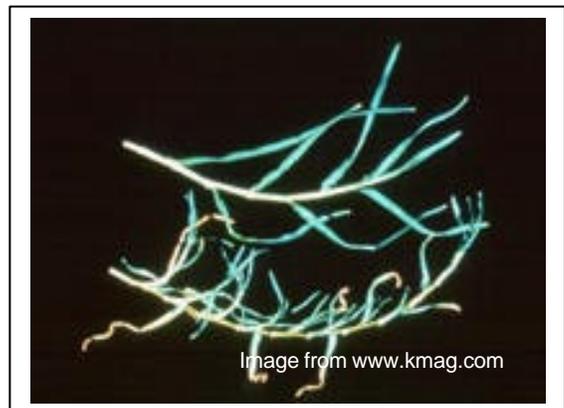
Deficiency Symptoms:

White spots on the leaves of some legumes and chlorosis and necrosis of leaf edges on corn and other grasses are typical of K deficiency. In bermudagrass strands will begin to thin and purplish spots will appear on young leaves, while older leaves become reddish-yellow in color and have shriveled tips. Deficiency symptoms appear on the lower older leaves in most plants, but can be exhibited on new growth of fast growing crops like cotton and wheat. Low rates of K will cause a weakening of straw in small grains and weak stalks in corn and sorghum. Potassium deficiencies reduce crop yields, sometimes without the appearance of deficiency symptoms. K deficiency can lower plant resistance to disease, insect, and mite infestation, as well as, infection by nematodes and virus. Soybeans are more susceptible to pod and stem blight if K is in short supply. Low levels of K greatly increase the severity of foliar diseases in rice.

K Deficiency in Clover

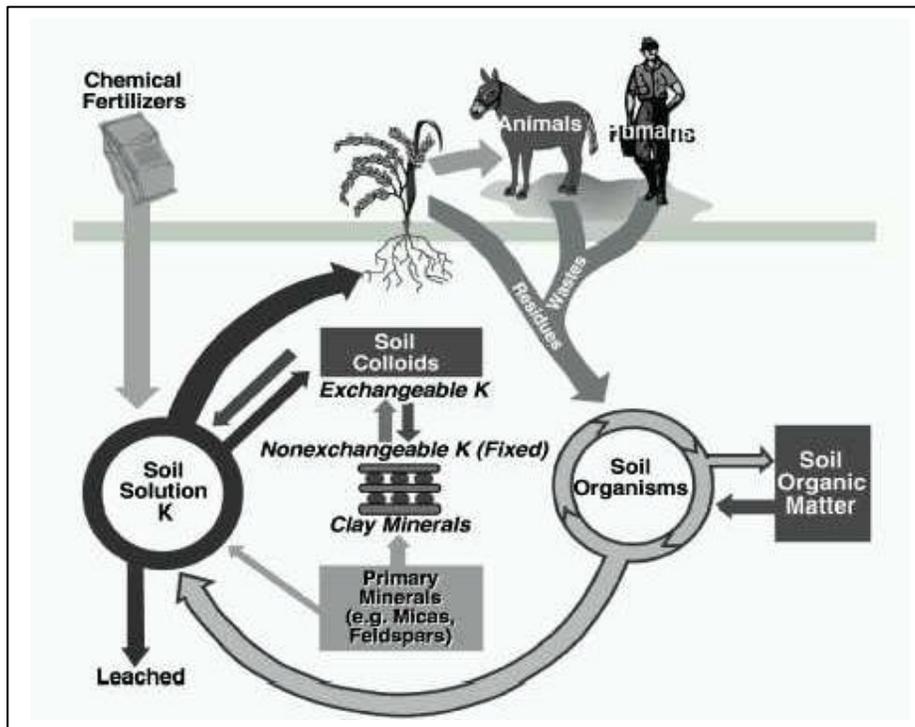


K Deficiency in Coastal Bermudagrass



Composition of Some Chemical Sources of K

Source	Percent N	Percent P ₂ O ₅	Percent K ₂ O	Percent S
Potassium Chloride	---	---	60 - 62	---
Potassium Sulfate	---	---	60 - 62	17
Potassium Magnesium Sulfate (11% Mg)	---	---	22	22
Potassium Nitrate	13	---	44	---
Potassium Hydroxide	---	---	83	---
Potassium Orthophosphate	---	30 - 60	30 - 50	---
Potassium Polyphosphate	---	40 - 60	22 - 48	---
Potassium Thiosulfate	---	---	25	17
Potassium Polysulfide	---	---	22	23



Potassium Cycle

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