Agronomic scientists of the International Plant Nutrition Institute (IPNI) have prepared a series of PowerPoint presentations featuring important nutrients for several major crops in North America.

These presentations include speaker notes and references and are intended to serve as a ready resource—individual slides or groups of slides can be selected for use and extracted from the sets. These PowerPoint sets are available free at the IPNI website or for purchase as a set on CD.

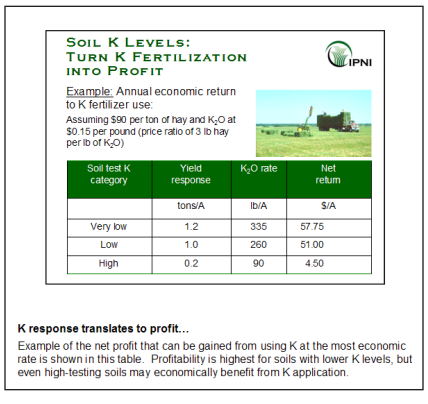
To find the PowerPoint presentations at the IPNI website, use this URL: >**www.ipni.net/cropnutrition**<

Each set contain approximately 40 slides. Here's a list of topics now available.

Phosphorus Nutrition of Alfalfa
Phosphorus Nutrition of Canola
Phosphorus Nutrition of Corn
Phosphorus Nutrition of Cotton
Phosphorus Nutrition of Wheat

Potassium Nutrition of Alfalfa
Potassium Nutrition of Cotton
Potassium Nutrition in the Northern Great Plains
Soil Testing for Phosphorus and Potassium

Samples of Notes pages—



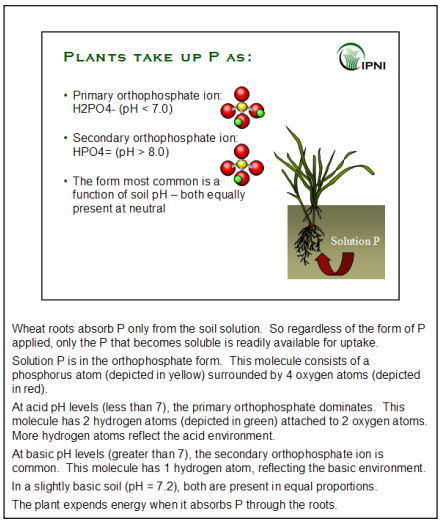
SOIL K LEVELS: TURN K FERTILIZATION INTO PROFIT

Example: Annual economic return to K fertilizer use:
Assuming $90 per ton of hay and K_2O at $0.15 per pound (price ratio of 3 lb hay per lb of K_2O)

Soil test K category	Yield response	K_2O rate	Net return
	tons/A	lb/A	$/A
Very low	1.2	335	57.75
Low	1.0	260	51.00
High	0.2	90	4.50

K response translates to profit…

Example of the net profit that can be gained from using K at the most economic rate is shown in this table. Profitability is highest for soils with lower K levels, but even high-testing soils may economically benefit from K application.



PLANTS TAKE UP P AS:

- Primary orthophosphate ion: $H2PO4^-$ (pH < 7.0)
- Secondary orthophosphate ion: $HPO4^=$ (pH > 8.0)
- The form most common is a function of soil pH – both equally present at neutral

Solution P

Wheat roots absorb P only from the soil solution. So regardless of the form of P applied, only the P that becomes soluble is readily available for uptake.

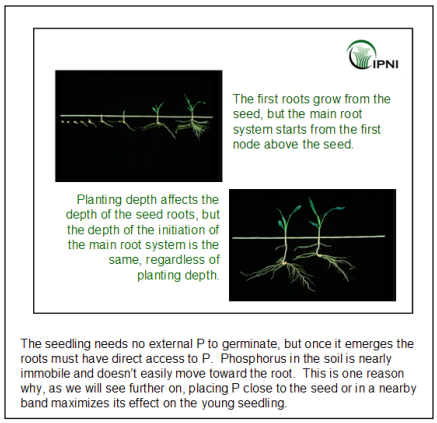
Solution P is in the orthophosphate form. This molecule consists of a phosphorus atom (depicted in yellow) surrounded by 4 oxygen atoms (depicted in red).

At acid pH levels (less than 7), the primary orthophosphate dominates. This molecule has 2 hydrogen atoms (depicted in green) attached to 2 oxygen atoms. More hydrogen atoms reflect the acid environment.

At basic pH levels (greater than 7), the secondary orthophosphate ion is common. This molecule has 1 hydrogen atom, reflecting the basic environment.

In a slightly basic soil (pH = 7.2), both are present in equal proportions.

The plant expends energy when it absorbs P through the roots.



The first roots grow from the seed, but the main root system starts from the first node above the seed.

Planting depth affects the depth of the seed roots, but the depth of the initiation of the main root system is the same, regardless of planting depth.

The seedling needs no external P to germinate, but once it emerges the roots must have direct access to P. Phosphorus in the soil is nearly immobile and doesn't easily move toward the root. This is one reason why, as we will see further on, placing P close to the seed or in a nearby band maximizes its effect on the young seedling.

A CD (Item # 82-8230) containing all the available topics in this series is available for $20.00, plus shipping. For more information, contact the IPNI Circulation Department (E-mail: circulation@ipni.net), 3500 Parkway Lane, Suite 550, Norcross, GA 30092-2806. Phone: 770-825-8082. Fax: 770-448-0439.