



Biology: The Impact on Potassium & Phosphorus Availability

Josh Kroeplien, owner of Fly by Acres LLC, has been helping biologically minded farmers with their inputs since 2016. His balanced approach to fertility programs has allowed his customers to “farm the free stuff first” to achieve fertility efficiencies while increasing yields and profit.

Grower Highlight: Over a few years, one 700-acre farm cut their input costs by over \$100 per acre while increasing yields 10%. Their biologically-minded program totaled \$67,000. Had they stayed on their previous NPK program; their costs would have been \$160,000.

Saved nearly \$100K on fertility inputs!



Challenges in the Field Today:

- **Only 30%-70% of applied Nitrogen gets to the plant.** (Source: NIH Biol Res. 2020; 53:47)
- **Only 30%-60% of applied Potassium gets into the plant.** (Source: Dhillon, J.S., Soil Fertility and Crop Nutrition, 2019)
- **Only 5%-30% of applied Phosphorus is taken up by the crop.** (Source: Dartell Smith, Ag Web Farm Journal, 2013)

The biology in **BIOACTIVE LiquiLife®** can help you get more from your soil and applied inputs.



*“With biology, we’re making
the soil work for us.”*

See the discussion with Josh Kroeplien.

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Desorption and adsorption are the keys to getting the most from the soil, residue, manures, and applied fertilizers. Plants do not take up inputs in dry form, they require biology to change the inputs into a form the plants can use.

- **Organic P and K are tied to carbon.** When dealing with organic P and K, the biology in BIOACTIVE LiquiLife® consumes the carbon, leaving the mineral in a plant-available form
- **Inorganic P and K are tied to mineral/clay particles.** When dealing with inorganic P and K the 3-step process of disassociation/reassociation/mineral exchange can occur when BIOACTIVE LiquiLife® and a liquid carbon are used.

Especially for farmers using animal manures to supplement their field's nutrient profile, **insufficient microbial activity contributes to the reason nutrients may be locked up and not mineralized in a timely fashion to fulfill the crops' needs.**



Nutrients that are trapped in your soil can be freed with microbes.

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The Purple Cow Take:

The robust, diverse, and balanced microbiology delivered by BIOACTIVE LiquiLife® can help maximize nutrient and mineral uptake from both organic and inorganic sources.

If there is moisture, and the plants are still not getting minerals, three considerations stand out:

- **A mineral imbalance.** This can be from either excess or deficiency.
- **Diminished energy and mineral exchange capacity.** This can be related to high salt factors.
- **Chelation.** Excessively tied up minerals may be unavailable to the plant.

BIOACTIVE LiquiLife® will help you get the most out of the soil, manure, crop residue, and other inputs you apply. Adding the necessary microbes for nutrient cycling and conversion of nutrients to the proper form for plant uptake is an excellent way to increase fertility efficiencies and profit this season and for years to come.