

MAXIMIZING PHOSPHORUS EFFICIENCY

DRIVING PLANTS PER ACRE, THE START YIELD COMPONENT

Phosphorus has its largest peak demand in the crop's first 30 days of life.

FIRST & FALL tillers = YIELD.

Phosphorus is the single largest factor in determining **EARLY tiller counts** that ultimately **drive yield**. Late forming tillers divert energy away from increasing head size, leading to lower kernel weight and grain quality.

PLACEMENT matters.

Layering seed-placed **AND deep-banded phosphorus** promotes earlier root growth and deeper vertical root formation driving **increased access to moisture** and minerals deep within the soil profile that are often yield-limiting factors in PNW crops.

With
M+STRUCT

Without
M+STRUCT



M-Struct™ promotes faster and more fibrous root development

Phosphorus placement **NEXT TO THE SEED** as a starter fertilizer is **VITAL** in challenging emergence conditions often found in the PNW - cold, late, dry, no-till.



Turning the starter fertilizer (KickStarter™) off mid-application in these fields shows a noticeable difference in winter hardiness and spring green-up.

Phosphorus is critical at every stage of the plant lifecycle

SUFFICIENT PHOSPHORUS

PHOSPHORUS DEFICIENCY

P promotes seed production

Slow and stunted growth

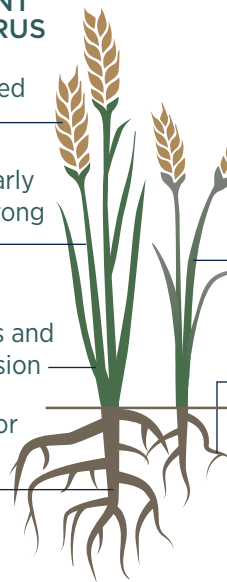
P stimulates early growth and strong stands

Reddish-purple to pinkish color may be noticed

P drives photosynthesis and energy conversion

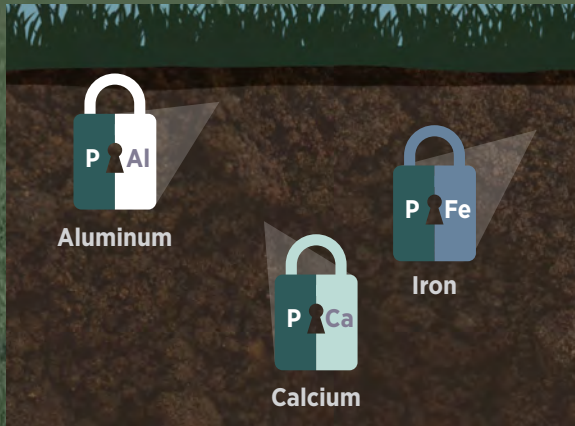
Slower root development and tillering

P is essential for deep, vertical root development



START WITH BIG ROOTS. FINISH WITH BIG YIELD.

Larger root systems improve water and nutrient use efficiency.

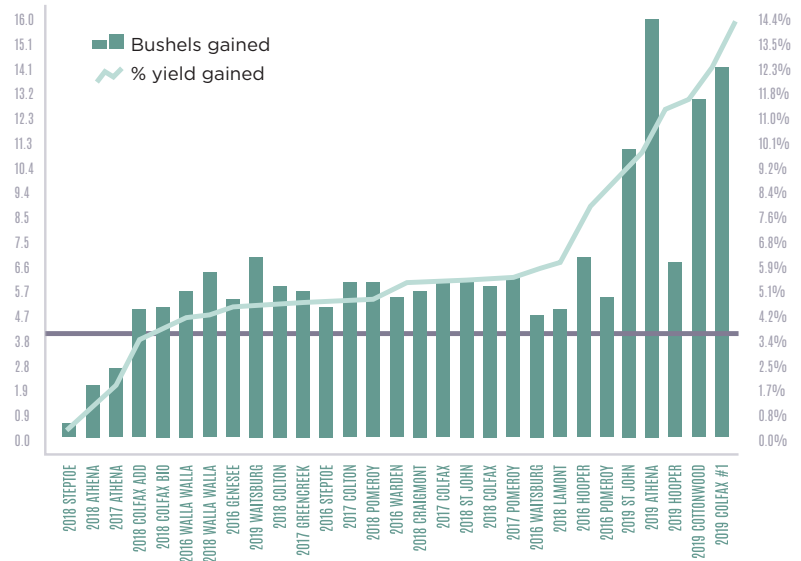


An estimated **60-80% of applied phosphorus disassociates** in the soil and ties up with other positively charged elements such as Al, Ca, and Fe to form compounds that are **unable to be absorbed by the plant.**

Phosphorus is **5X LESS PLANT-AVAILABLE IN COOL SOILS**

Study conducted by UC Davis comparing organic phosphorus levels in soil temperatures of 55° F vs. 75° F.

UP TO **10.8% YIELD GAIN** WITH SEED-PLACED PHOSPHORUS



KickStarter vs. no starter fertilizer showed significant yield improvement in **over 85% of locations evaluated.** The McGregor Company, 2017-2020.

Access to banded phosphorus encourages **VERTICAL** root growth, which is **KEY** to mining deep soil moisture - the **MOST YIELD LIMITING FACTOR** in dryland farming.

With Banded Phosphorus

Without Banded Phosphorus



Banded phosphorus (M-Struct) promotes **DEEP** root development to access **DEEP** soil moisture.

Premium Plant Nutrition



www.mcgregor.com