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Muck soils are severely affected by phosphorus (P) availability.

- ✓ There are global concerns that P fertilizers will become scarce
- ✓ Lettuce plants typically exhibit stunted growth when P is limited.
- ✓ The goal is maintaining crop yields but also reduce dependence on limited P resources.
- ✓ Lettuce adapted to lower P fertilizer rates not only offers a pathway to maintain crop yields but also reduces dependence on the limited P resources.



This initiative is not new, and has broader potential

- ✓ Lettuces capable of being productive in low P fertilizer rates were identified in crisphead, romaine, butterhead, loose leaf, and bibb.
- ✓ This project also holds potential for broader success in other major lettuce-producing regions worldwide to address nutrient limitations of macro and micronutrients.
- ✓ This initiative serves as a case of success for other crops that rely heavily on P fertilizer.



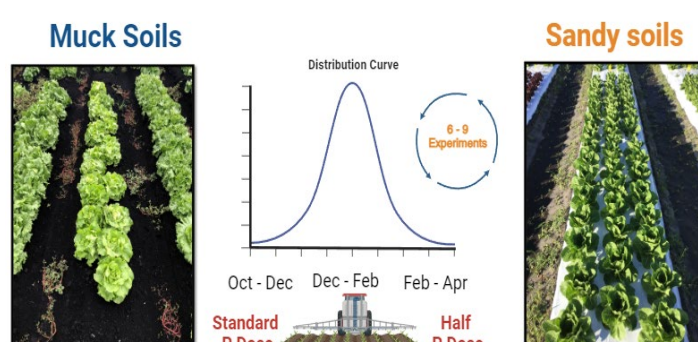
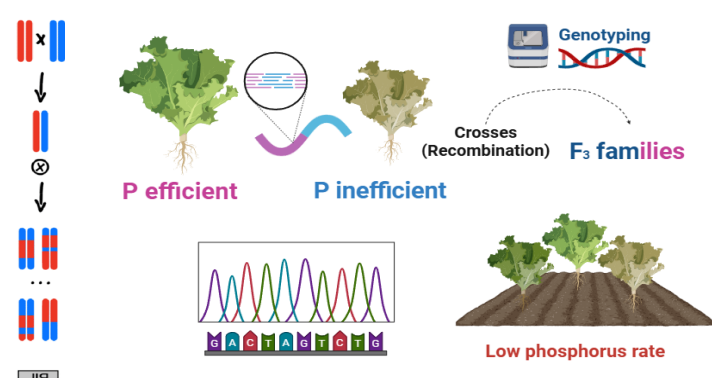
Plant breeding offers a sustainable solution in this project

UF lettuce breeding program works to improve cultivars that can maintain yield with fewer inputs .

Genetics of PUE

PUE in different soils and seasons

Better roots, better P uptake.



Sponsors of the project

A) Plant Breeding Graduate Initiative. Early Career Award of Dean of Research.

B) Specialty Crop Research Initiative Project “Enhancing Resource Utilization for Sustainable Lettuce Production in Changing Climates”

C) Florida Vegetable Exchange. EAA Leafy vegetable growers