

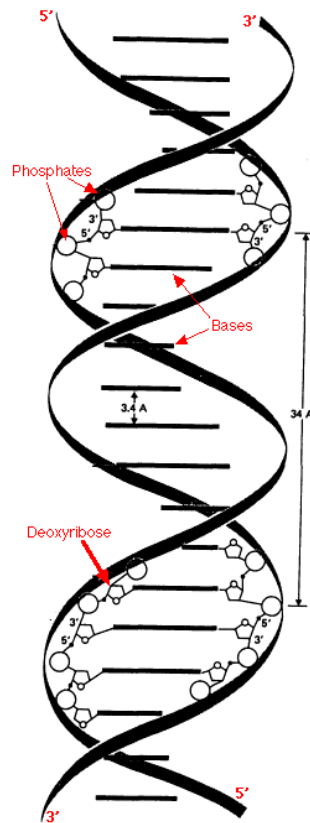


Effect of root characteristics on P uptake by corn

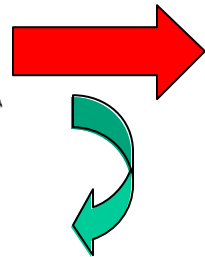
Laura Pletsch-Rivera

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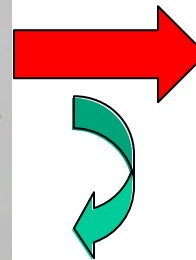
University of Wisconsin, Madison



Genetics



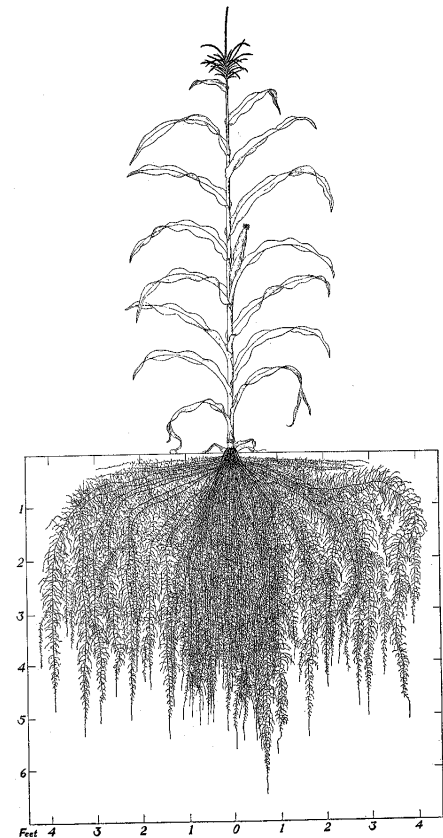
Root architecture



Field info

Why is root architecture important for P uptake?

- P not very mobile in soil
 - less mobile in cold temperature
- Easy to deplete P near roots

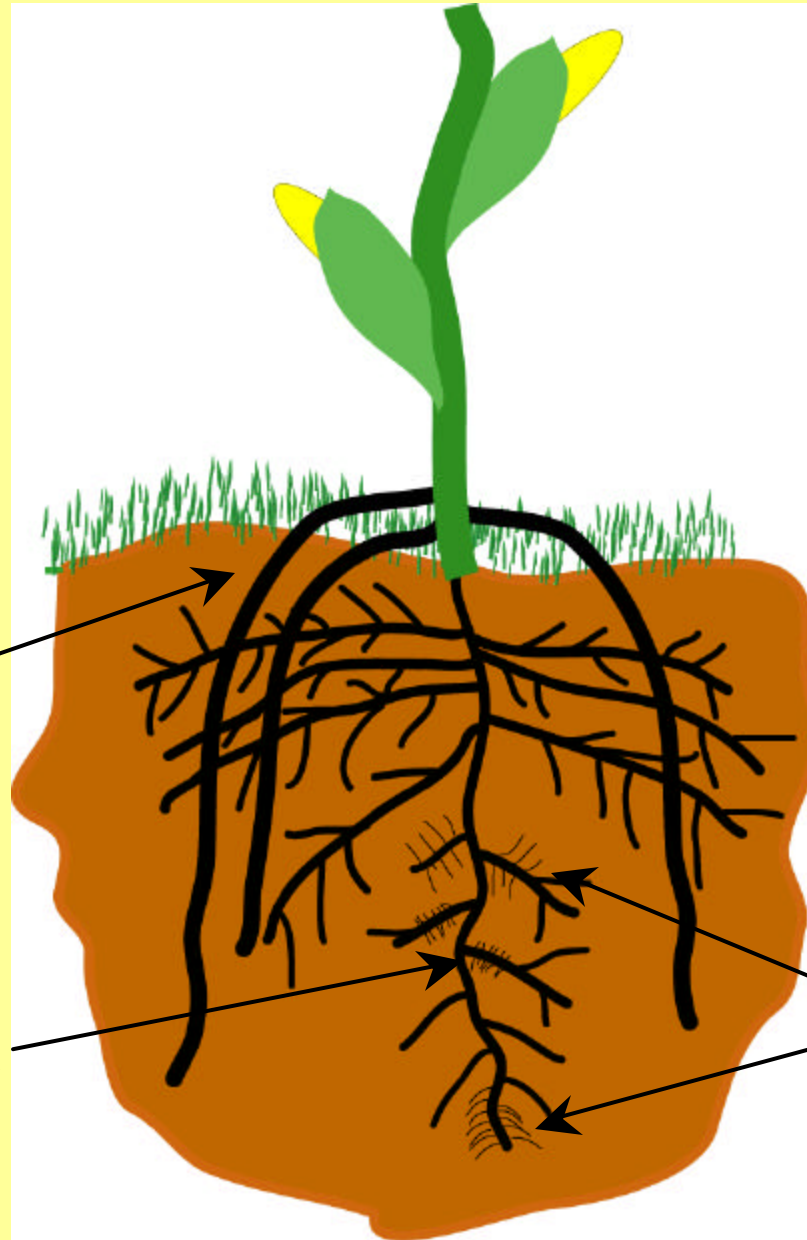


brace roots

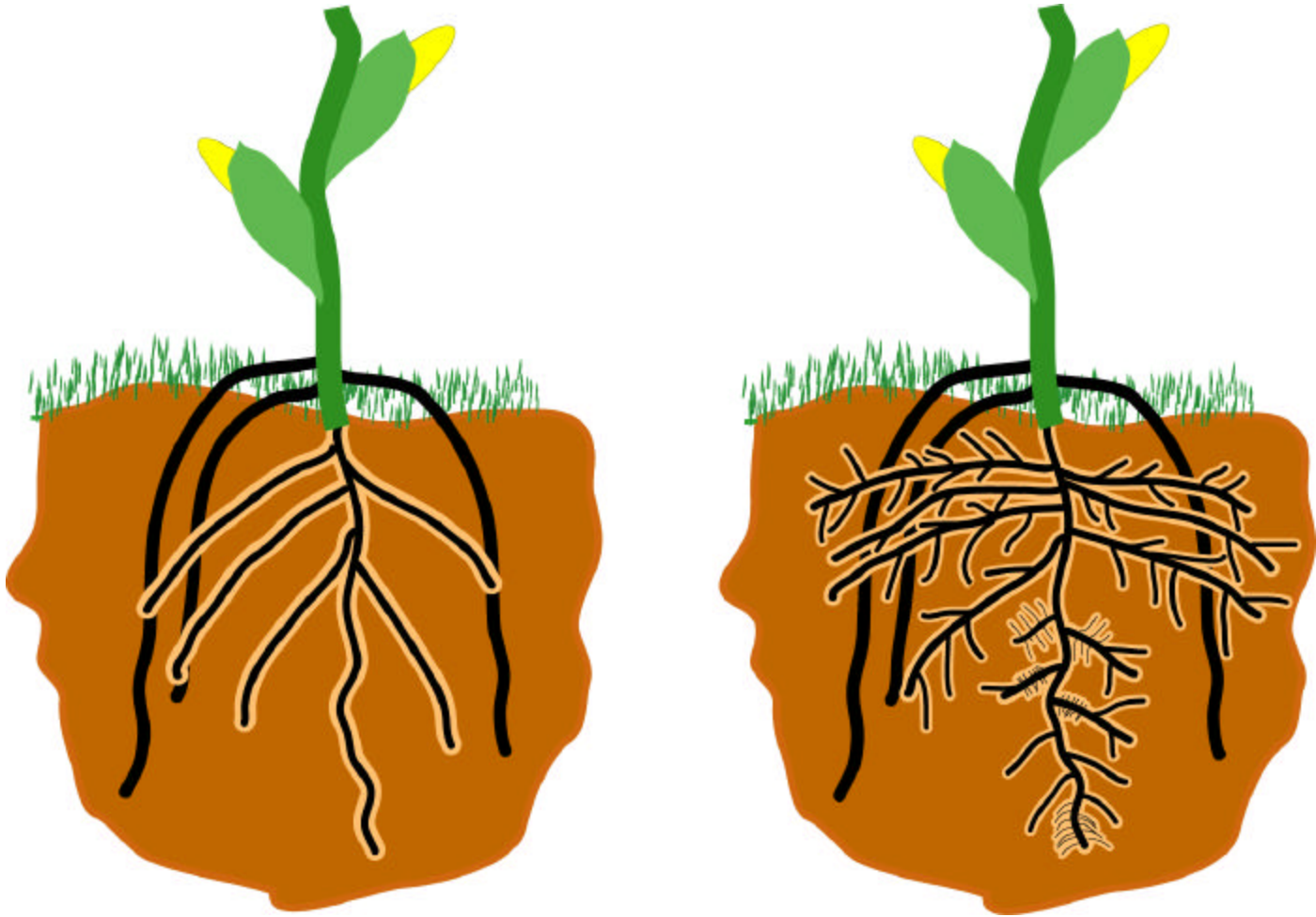
primary root

adventitious roots

root hairs



Root branching

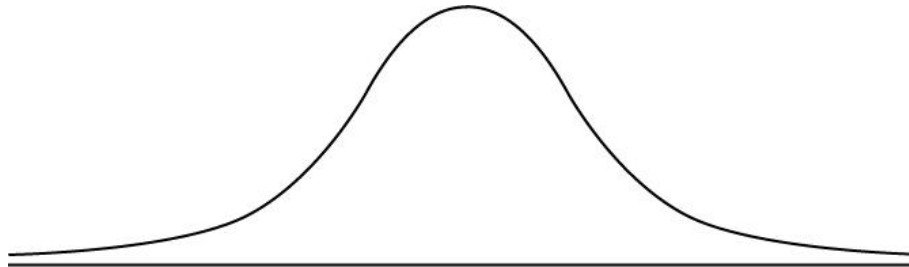


Marshfield research station



Marshfield research

- Population of plants derived from two inbreds
- One parent can grow well in low P
- Other parent grows poorly in low P
- Evaluate progeny in low P and high P



Marshfield research

Types of data collected:

- % germination
- Seedling weight
- Flowering dates
- Plant and ear height
- Root and stock lodging
- Yield
- P content in above ground plant

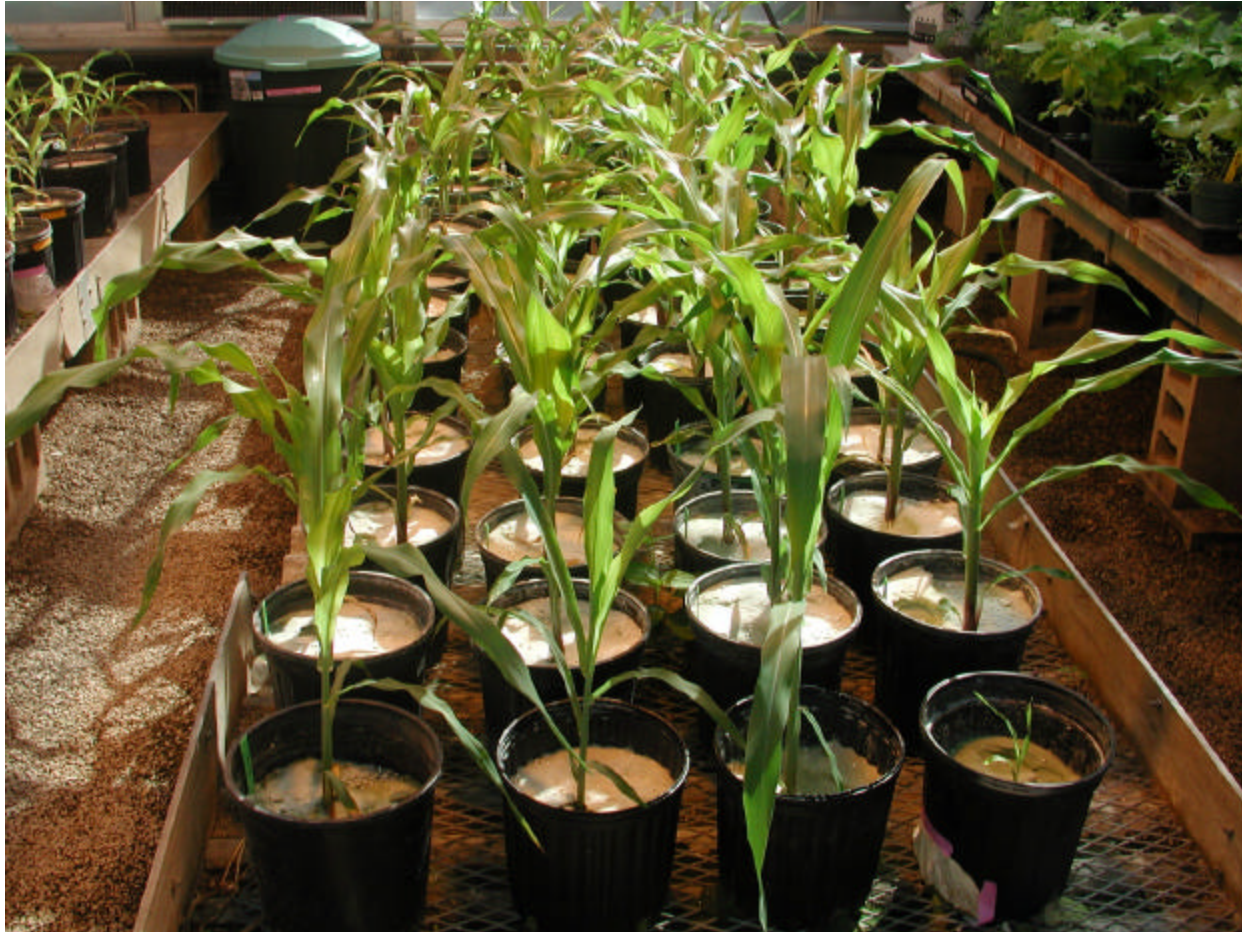


Low-P
Tolerant

Low-P
Intolerant



Greenhouse experiment



Greenhouse experiment

- Grow plants in sand-alumina mix
- Harvest seedlings
- Weigh above-ground plant
- Scan roots



Root scan example

