

Economics of Cotton Fertility Management

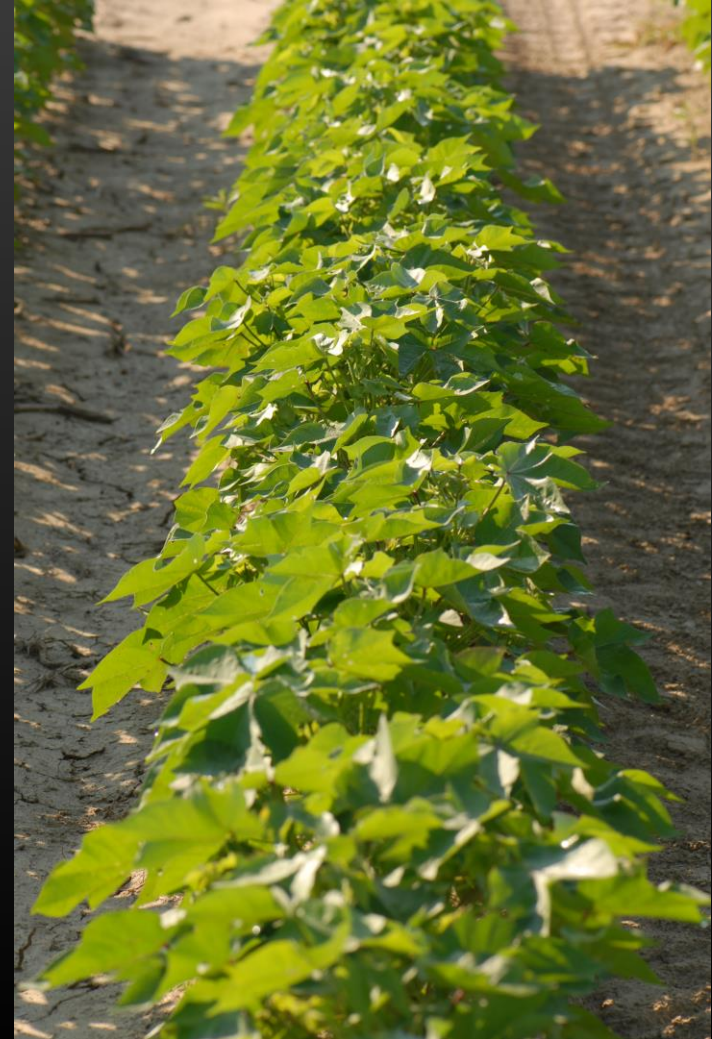
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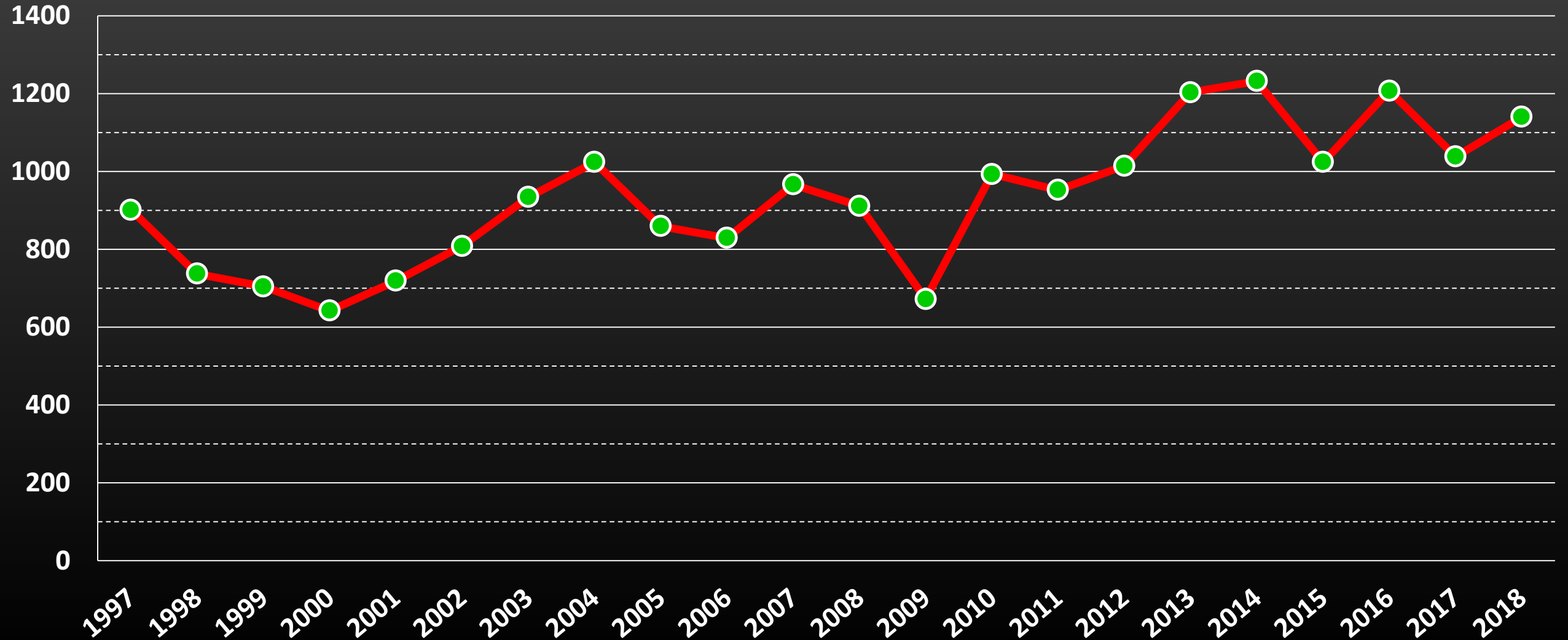


2019 Expectations

- **2018 yields: 1,140 pounds per acre**
- **Acreage in 2019**
 - How much cotton?
- **Yield expectations**
 - Very concerned
- **Will be forced to maximize return on investment**
 - Spend less to make more?

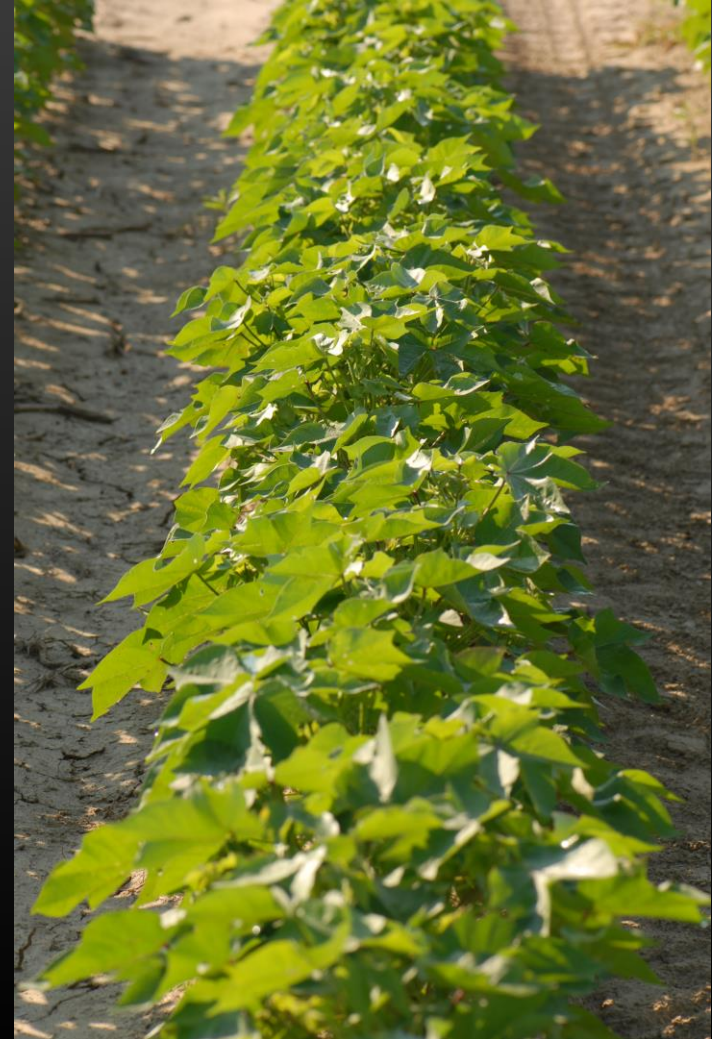


Mississippi Cotton Yields

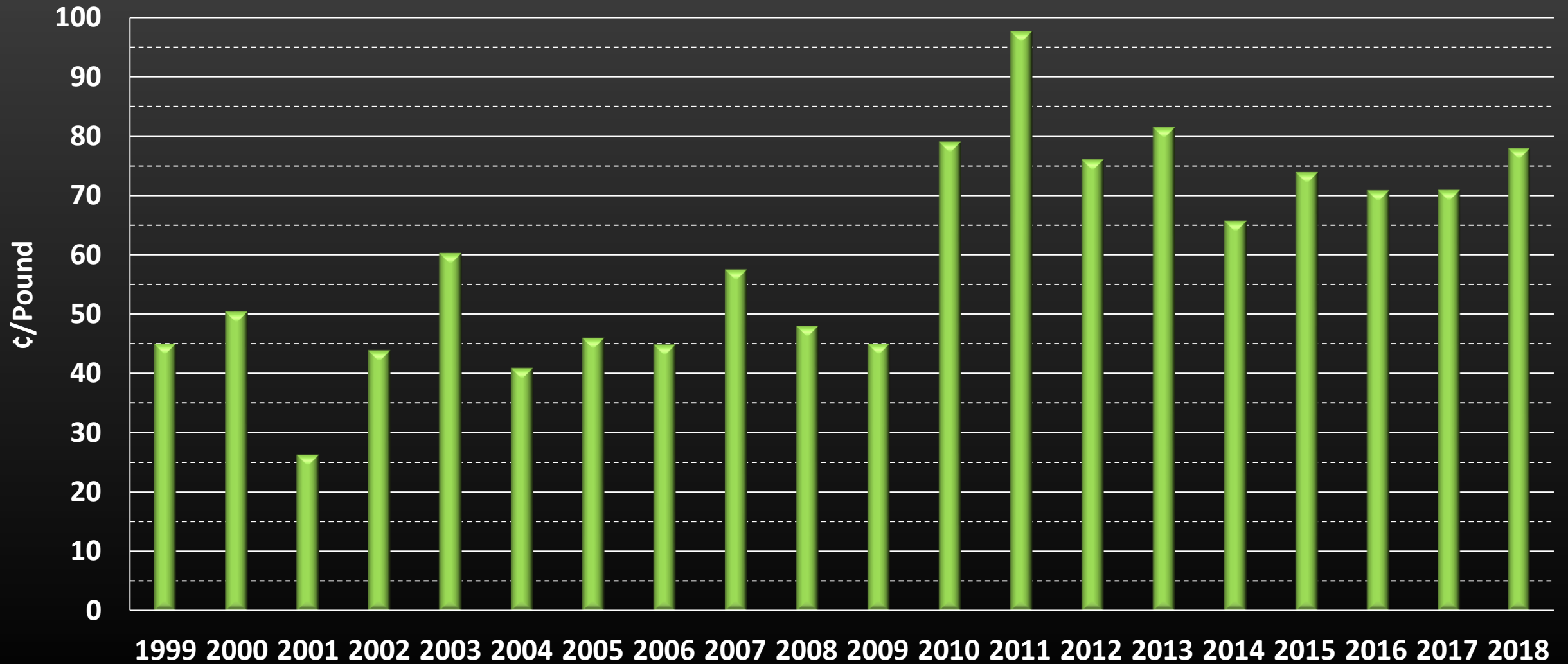


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Cotton Price



Up, Up, and Away.....

- Cotton price is up – relatively speaking
- Yields are better than ever
- Expenses are higher than ever
 - Equipment
 - Land
 - Crop protection
 - How much money is spent when the planter goes through the field?

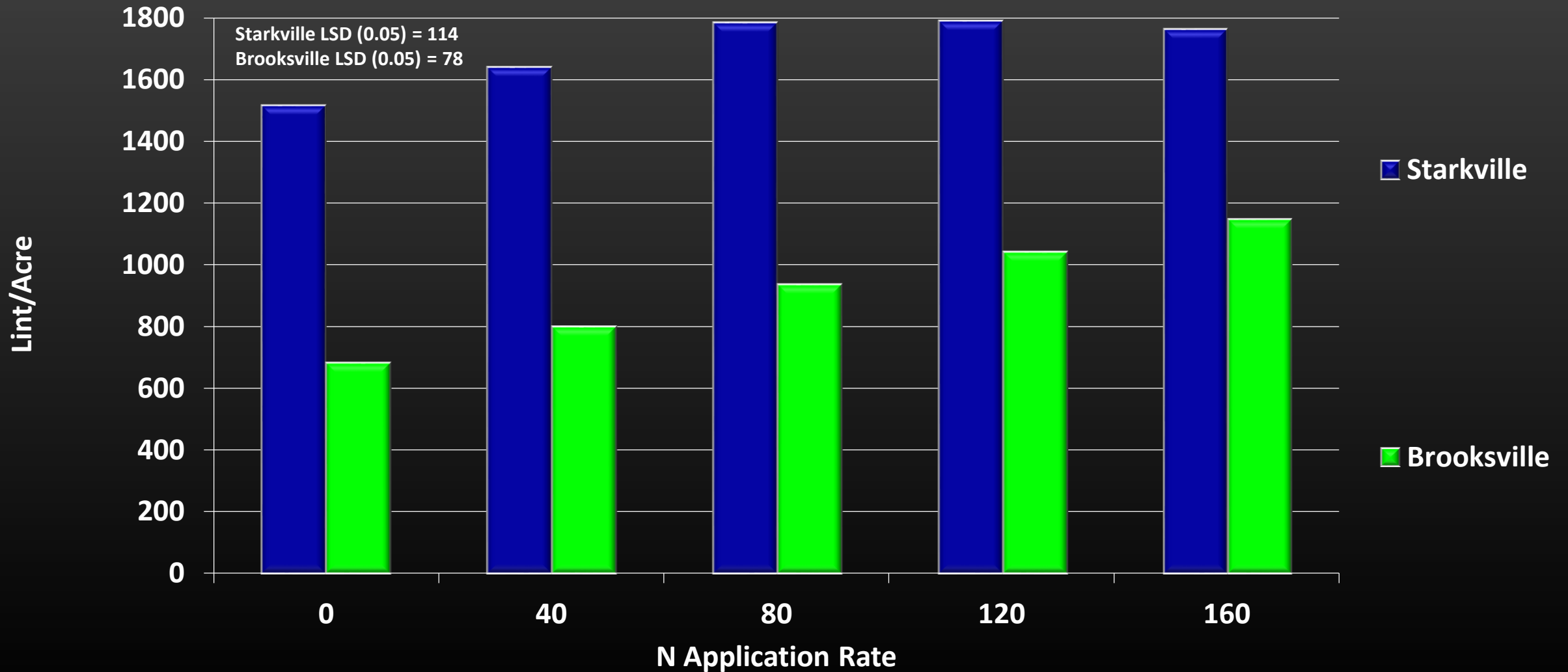


Investing in Fertilizer and Lime

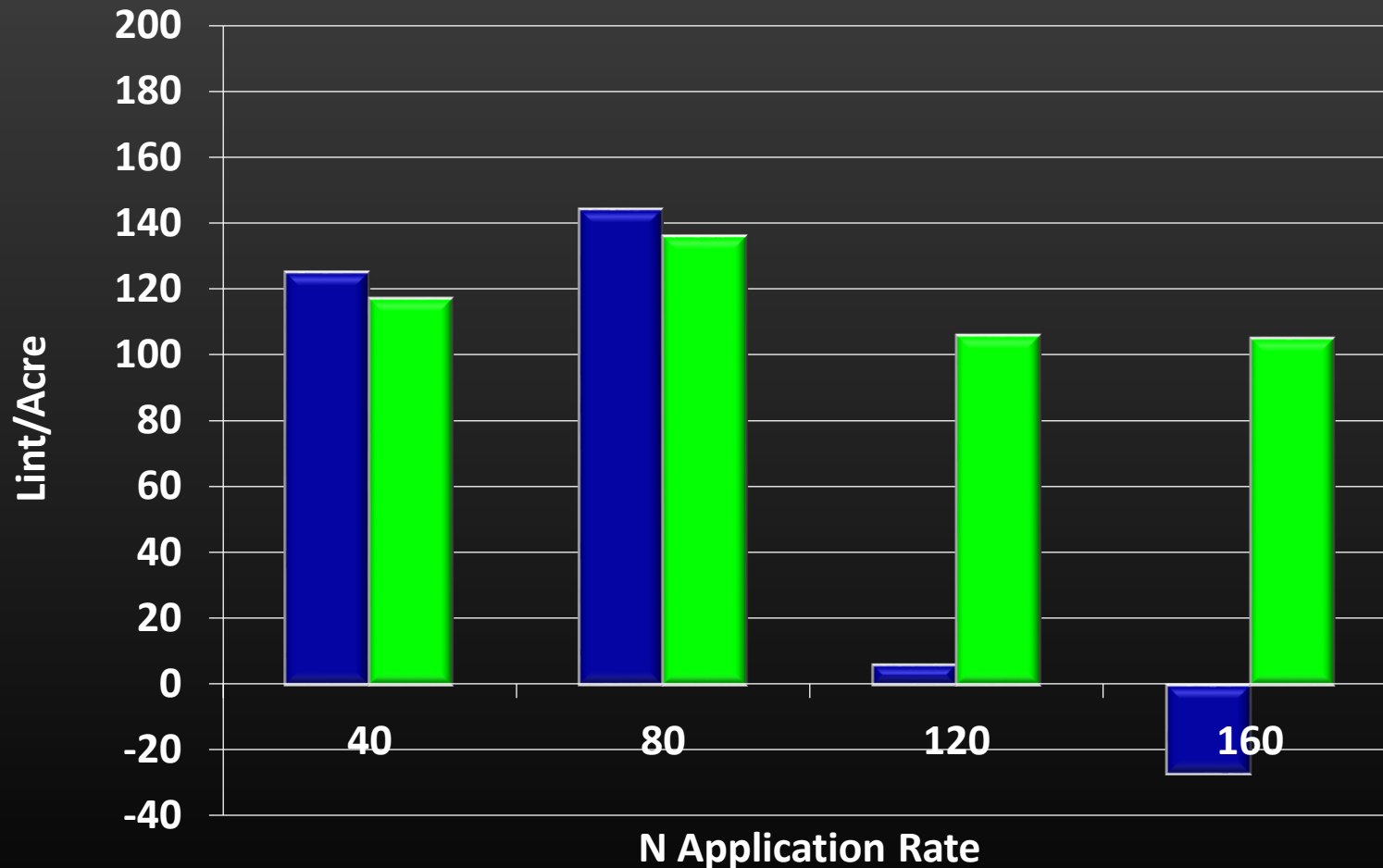
- **Nitrogen:**
 - Many downstream effects from over/under application
- **Potassium**
 - 2nd only to nitrogen in terms of importance
- **Lime**
 - Tends to be forgotten until root problems arise



Cotton Yield with Various N Fertilizer Rates



Economic Returns with Various N Fertilizer Rates



Increasing from 0 to 40 lbs N:
Starkville: +\$70.00
Brooksville: +\$64.40

Increasing from 40 lb to 80 lb N:
Starkville: +\$83.30
Brooksville: +\$77.70

Increasing from 80 lb to 120 lb N:
Starkville: -\$13.30
Brooksville: +\$56.70

Increasing from 120 lb to 160 lb N:
Starkville: -\$36.40
Brooksville: +\$56.00

Investing in Fertilizer and Lime

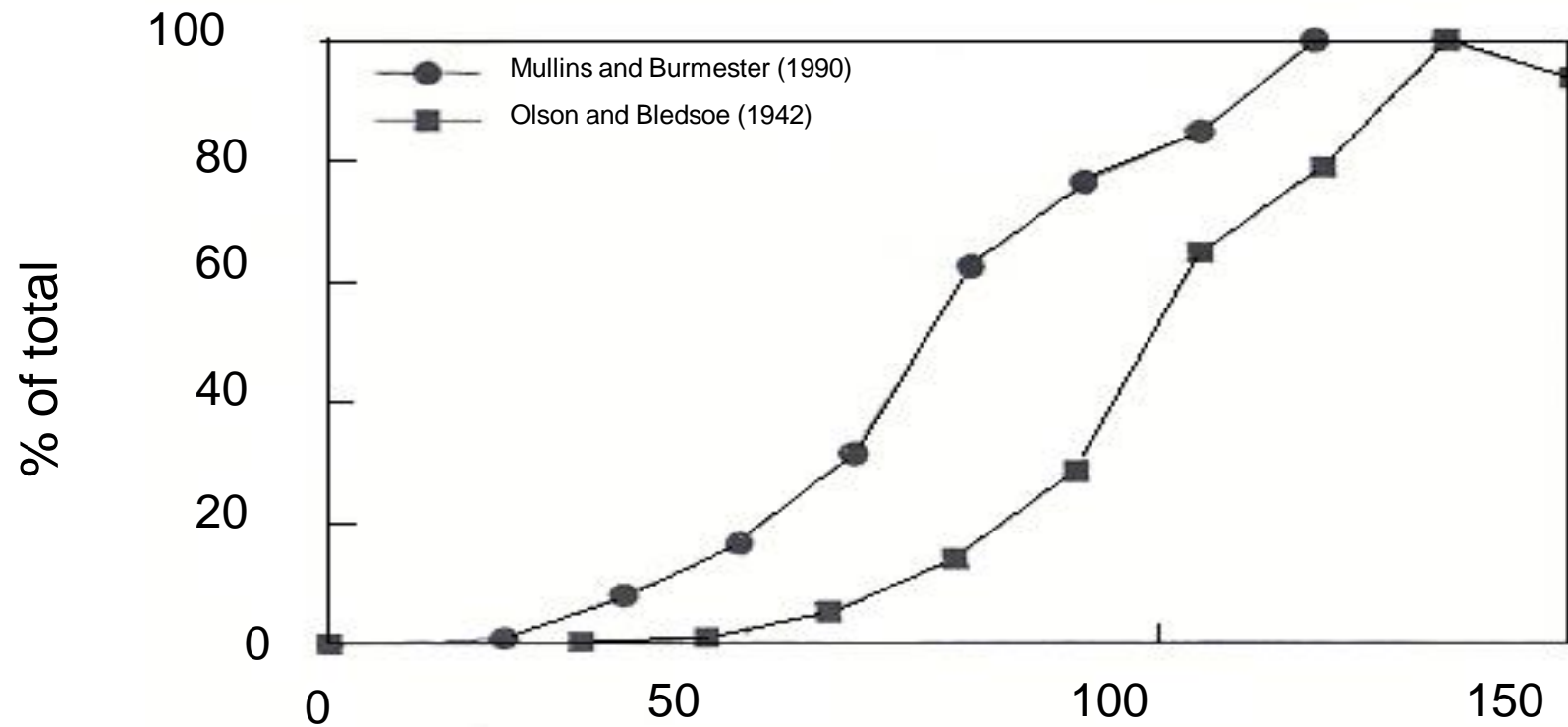
- **Not uncommon to hear: “I have 140 oz of Pix on this cotton and can’t stop it.”**
- **Reduction in nitrogen application rates:**
 - **\$10 – 12 per acre on N cost alone**
 - **Only selected soils**
 - **Help on plant bugs**
 - **Help on PGR’s**
 - **Help on defoliation**
- **Potassium**
 - **\$ 12 per acre saved on Nitrogen = 85 lbs of potash**



Photo Credit: 1st 40 Days/Fruiting to Finish Manual

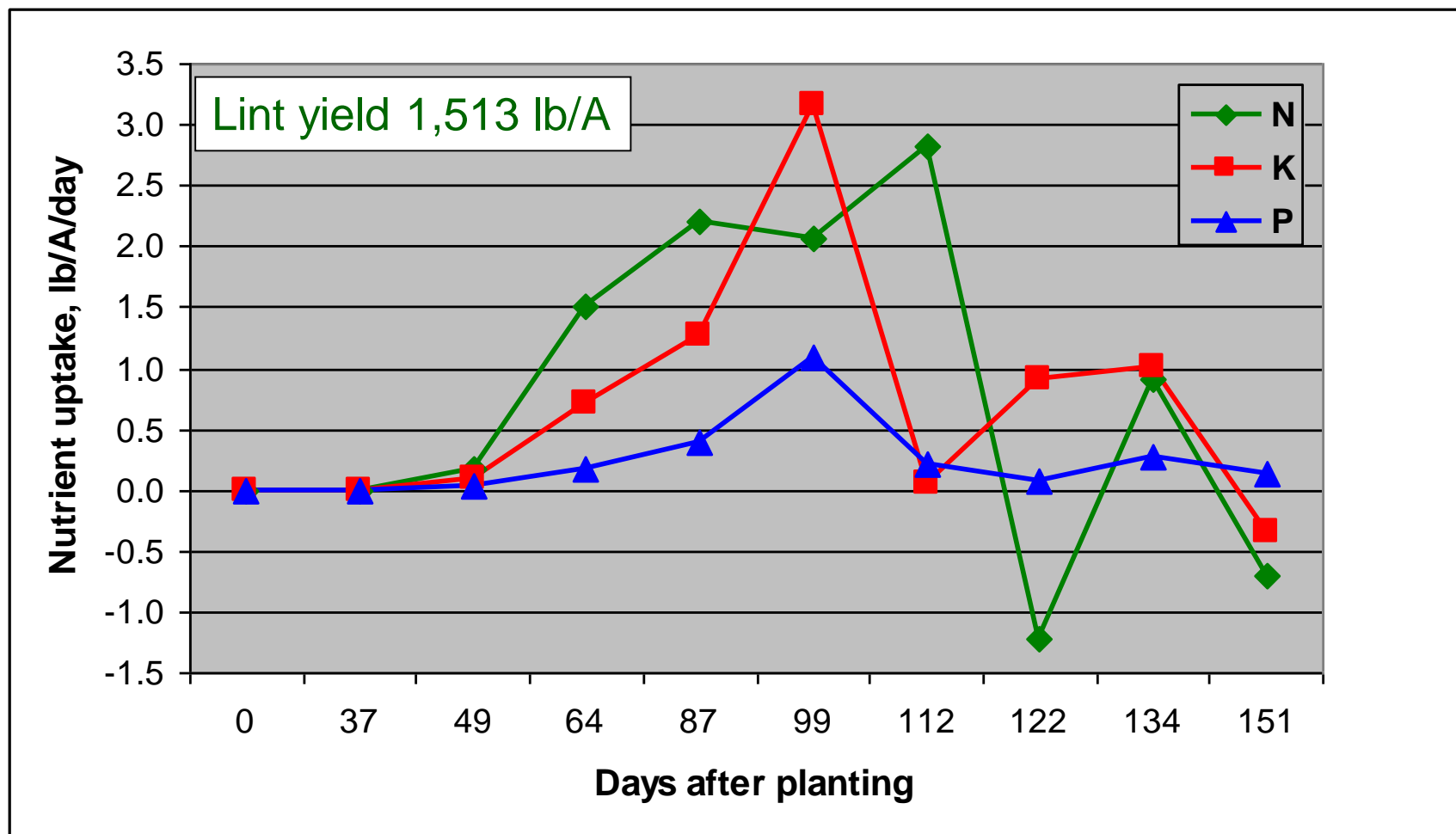


Potassium Accumulation in Cotton



Source: Oosterhuis and Berkowitz/IPNI

Maximum Daily Uptake of K, N, and P Occurs Near Peak Blooming



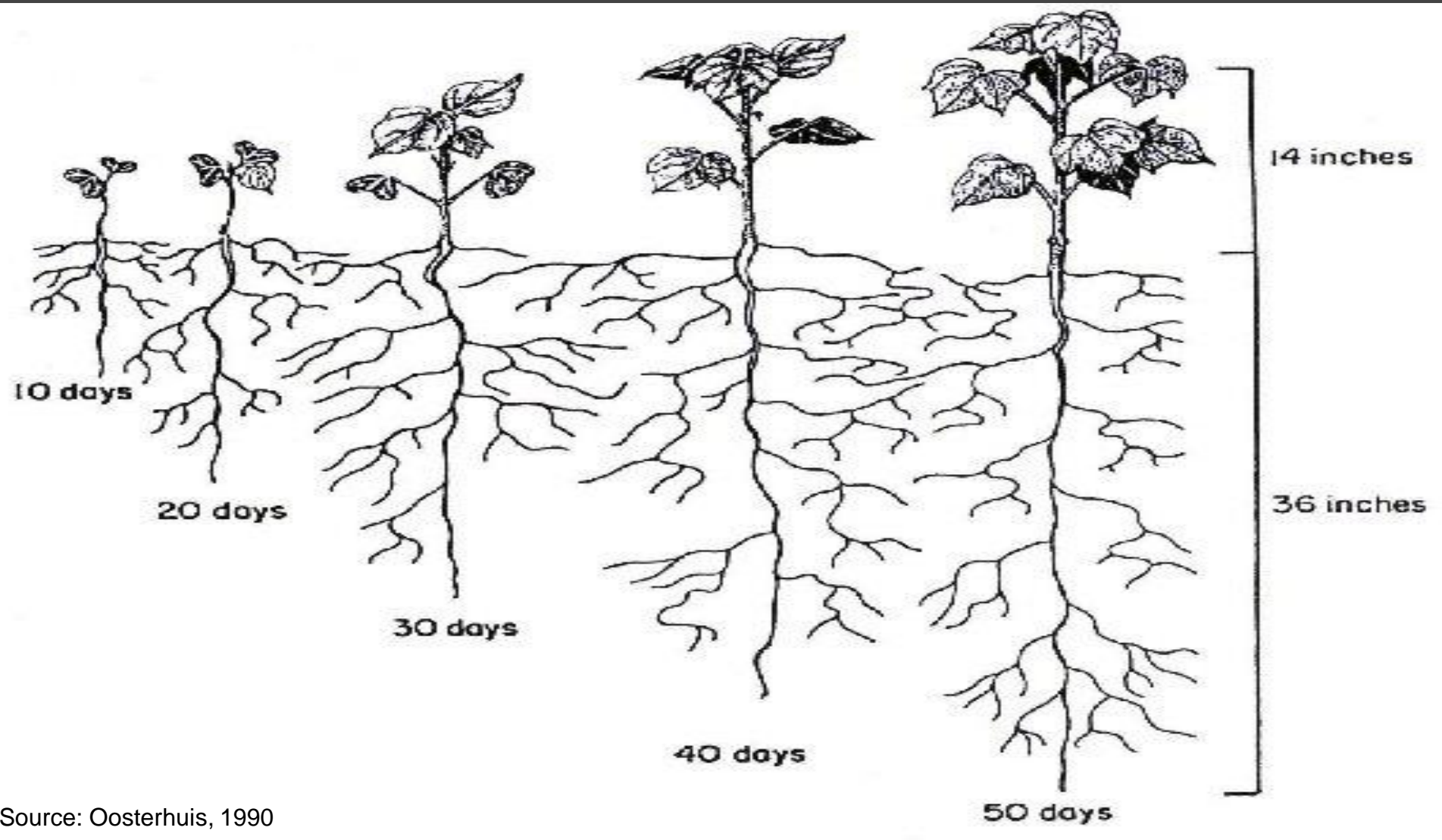
Source: Schwab et al., 2000

Building Soil Test K

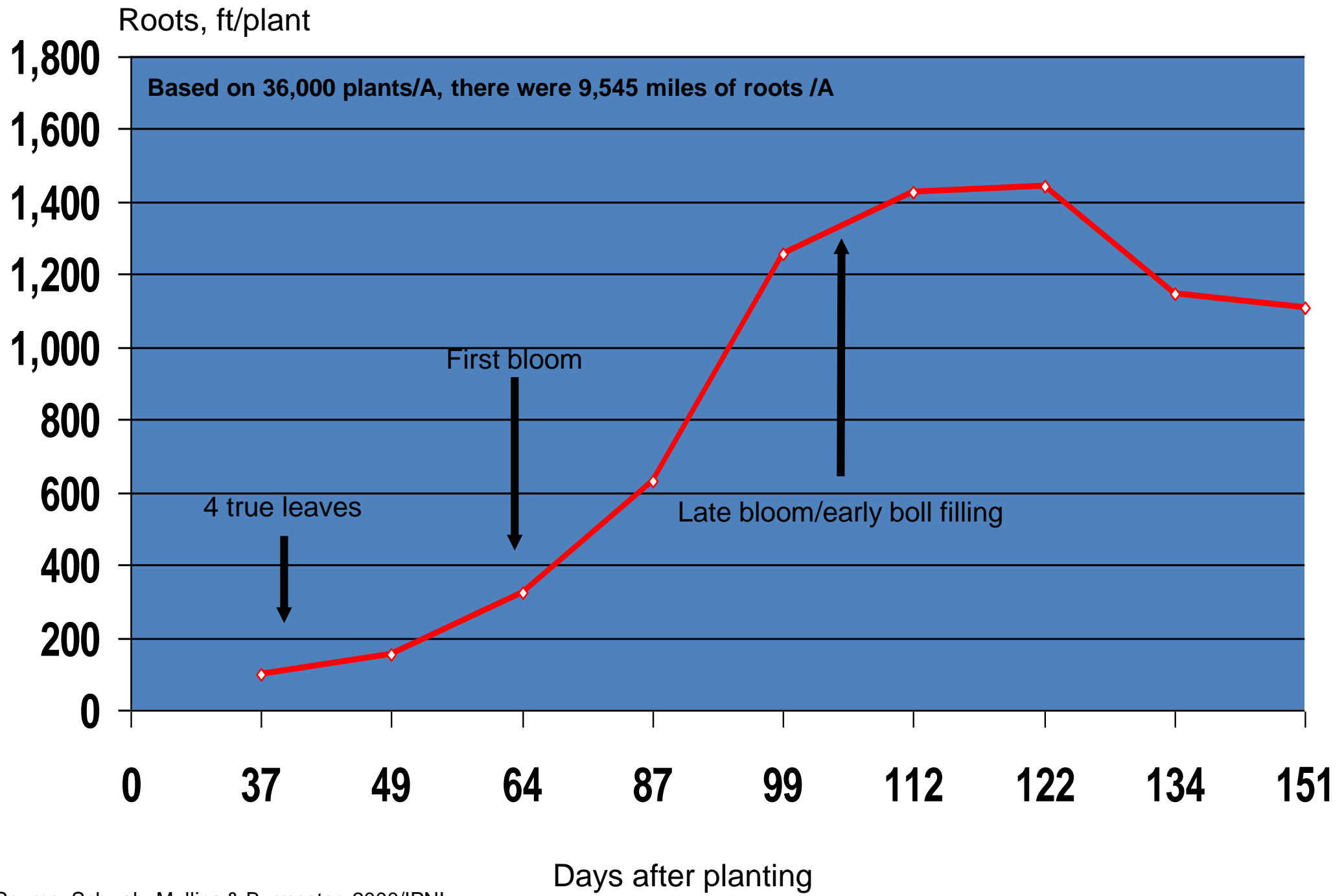
- Is it worth the money?
- Enhance use of soil moisture
- Maximize production in optimum years
- Weather the storm in challenging year?

Building Soil Test K

- 1000 lb cotton removes:
 - ~31 lbs K_2O in seed and lint
 - ~72 lbs K_2O in stalks, leaves, and burs
- Will likely take 8 – 16 lbs of Potash above how much is removed to build soil test levels 2 – 3 lbs on soil test
- Potassium fertilizer is an investment that you can't afford not to make



Source: Oosterhuis, 1990



Source: Schwab, Mullins & Burmester, 2000/IPNI





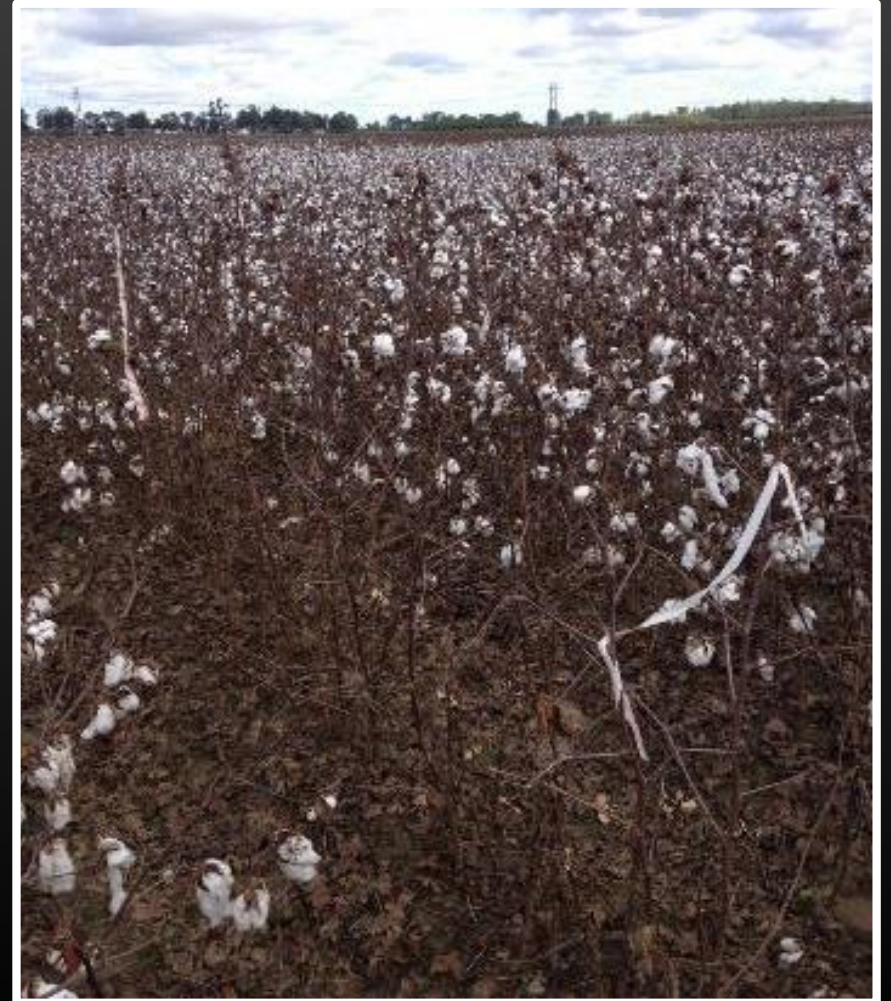
Farming Is An Investment – Invest Wisely

- **Extra money at planting**
 - Seed treatments
 - In-furrows
- **Re-plant decisions?**
- **Fertilizer/Lime**
 - ~60 lbs to pay for a ton of lime
- **Irrigation management**
- **Harvest aids**



Closing Thoughts

- **Big crops – big expense**
- **Don't win the yield game – win the money game**
- **Don't spend money frivolously**
- **Given current situation – spend money where you know it will return on investment**
- **Willingness to adapt**



Thank You

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Photo: Dennis Reginelli