



Can improving soil health improve yield?

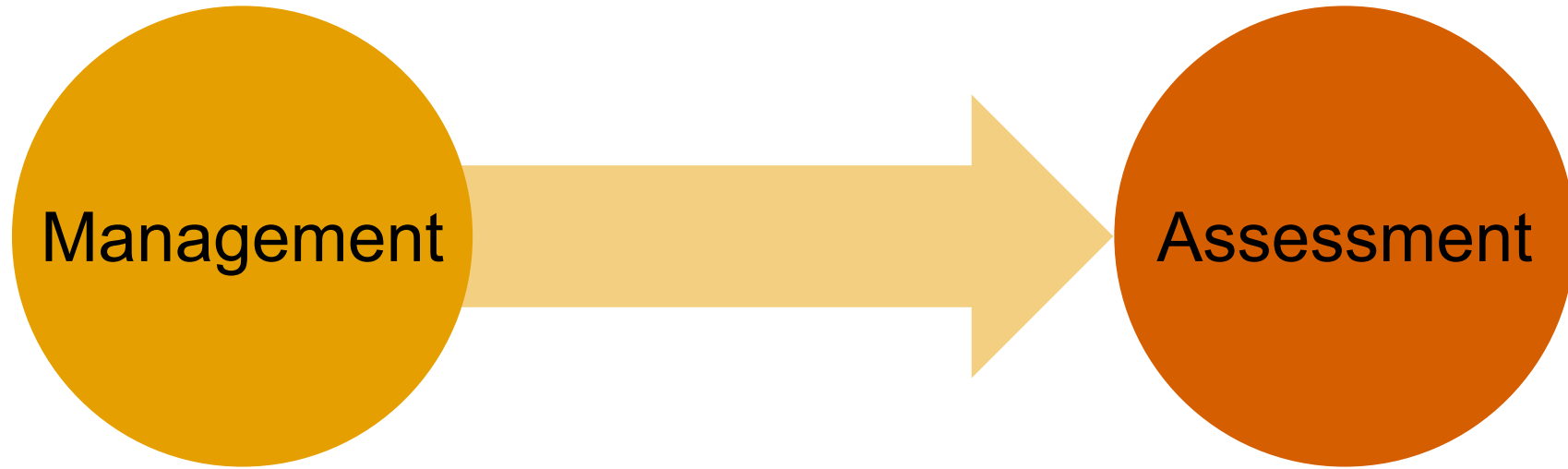
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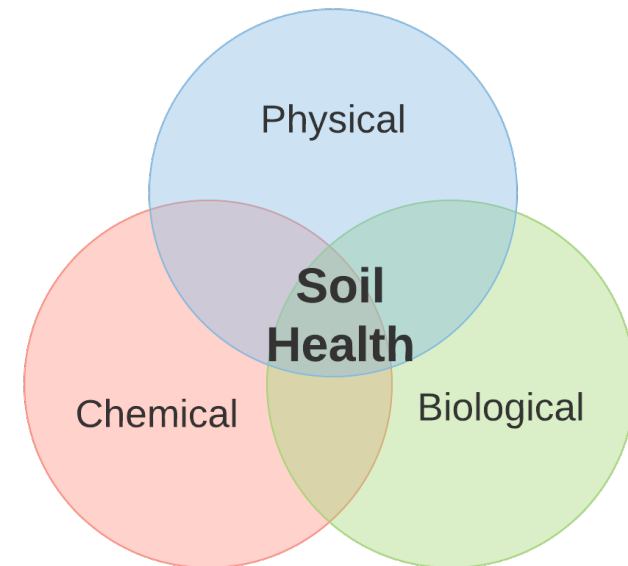
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Soil health: the 10,000 foot view

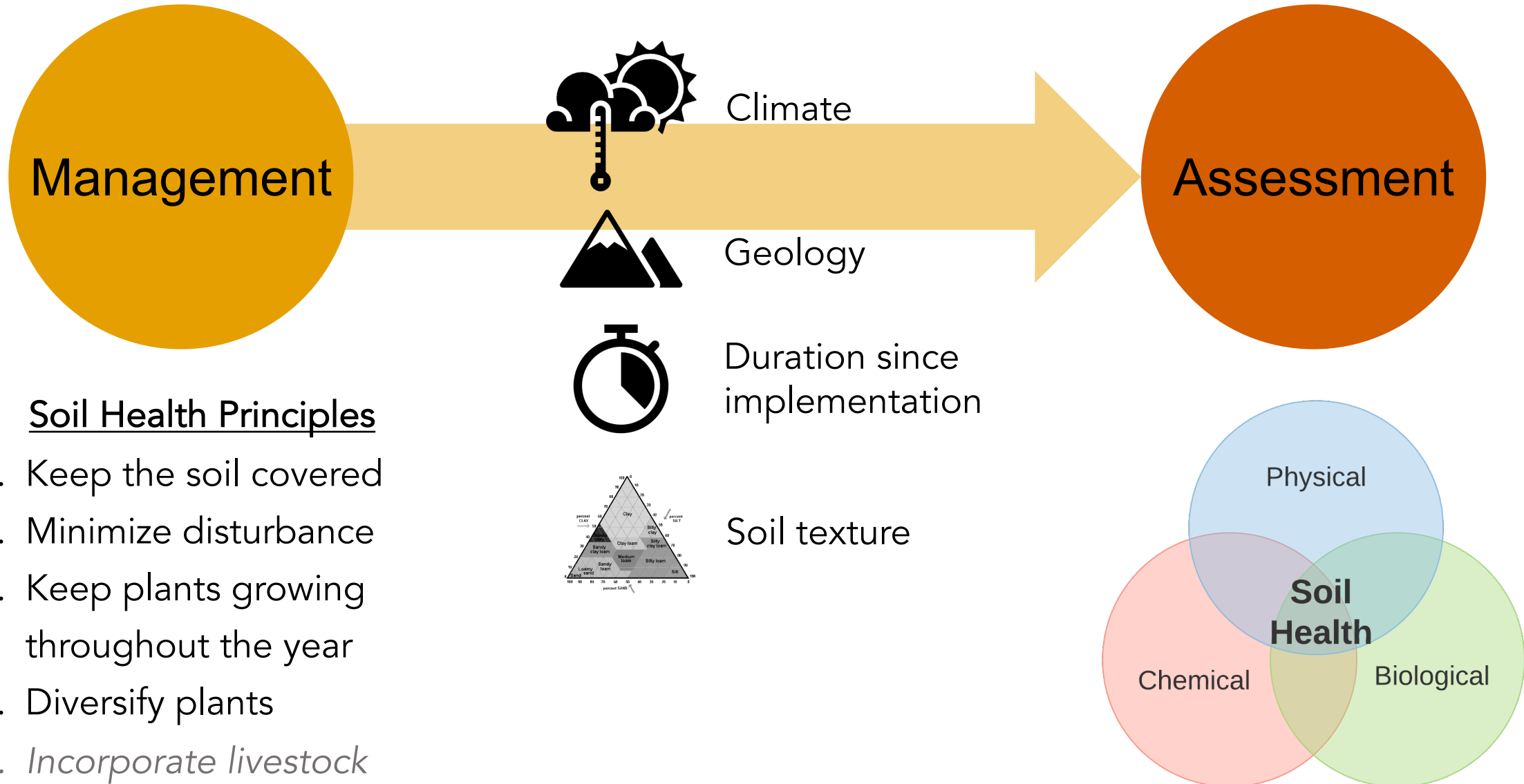


Soil Health Principles

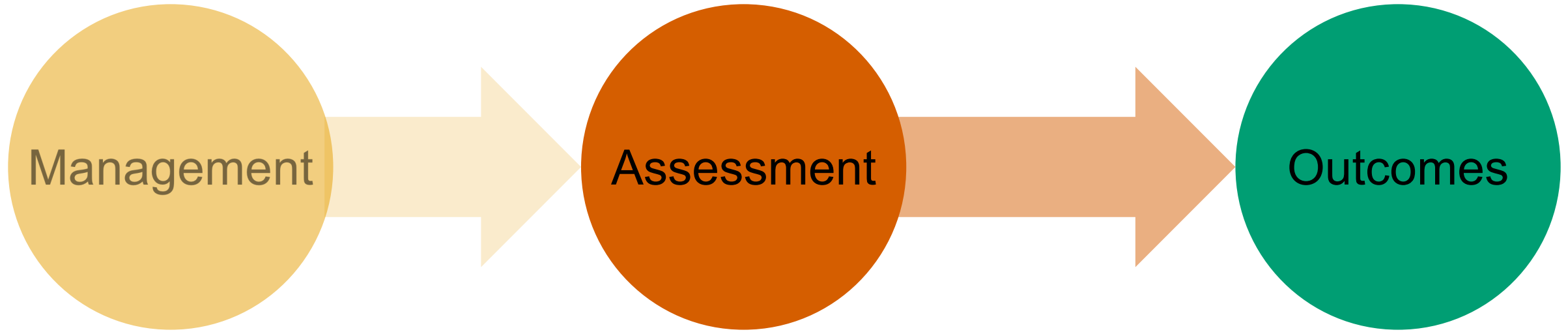
1. Keep the soil covered
2. Minimize disturbance
3. Keep plants growing throughout the year
4. Diversify plants
5. *Incorporate livestock*



Soil health: the 10,000 foot view

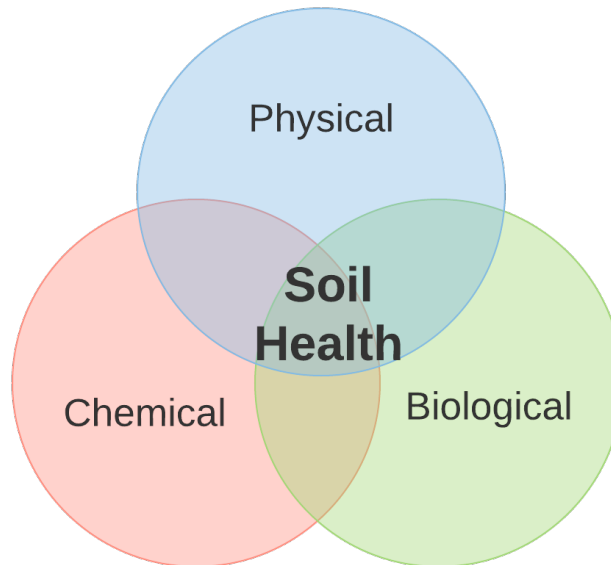


Soil health: the 10,000 foot view



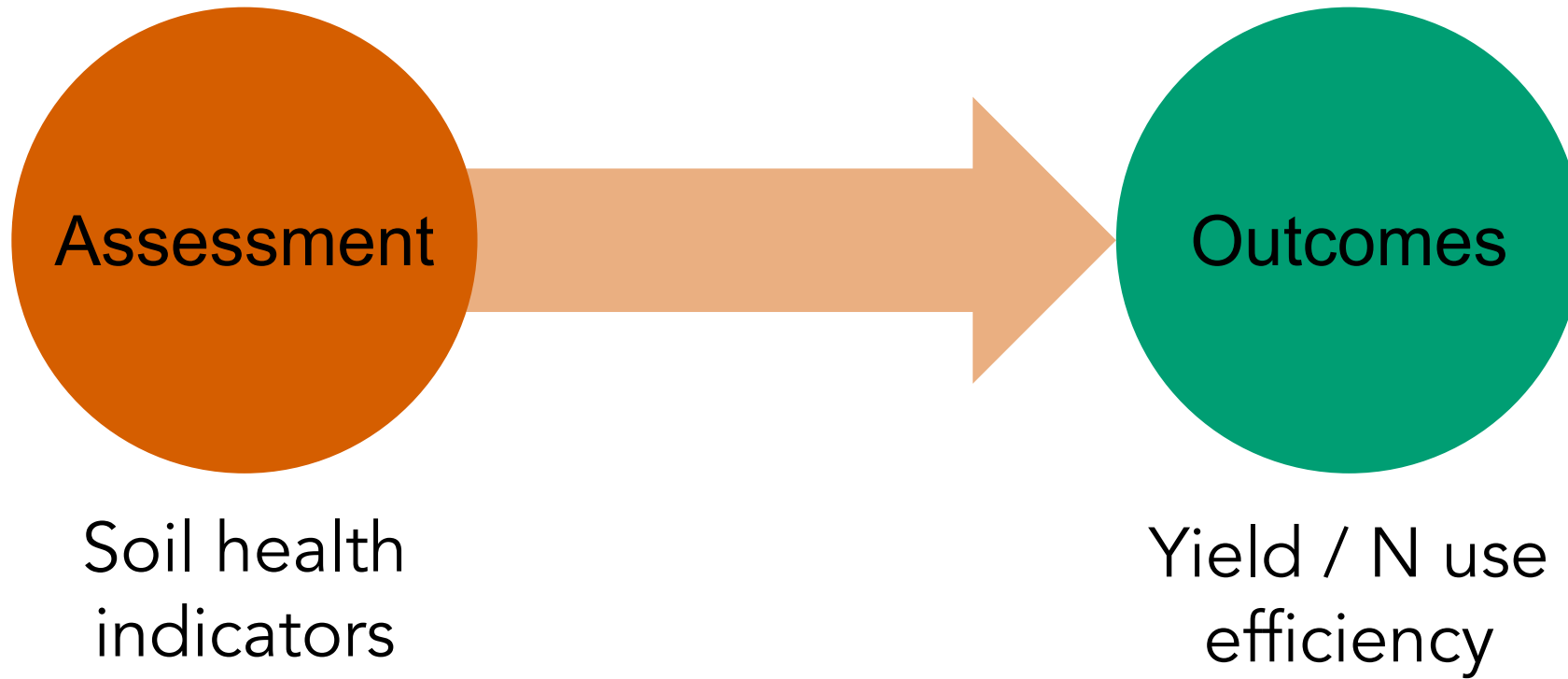
Soil Health Principles

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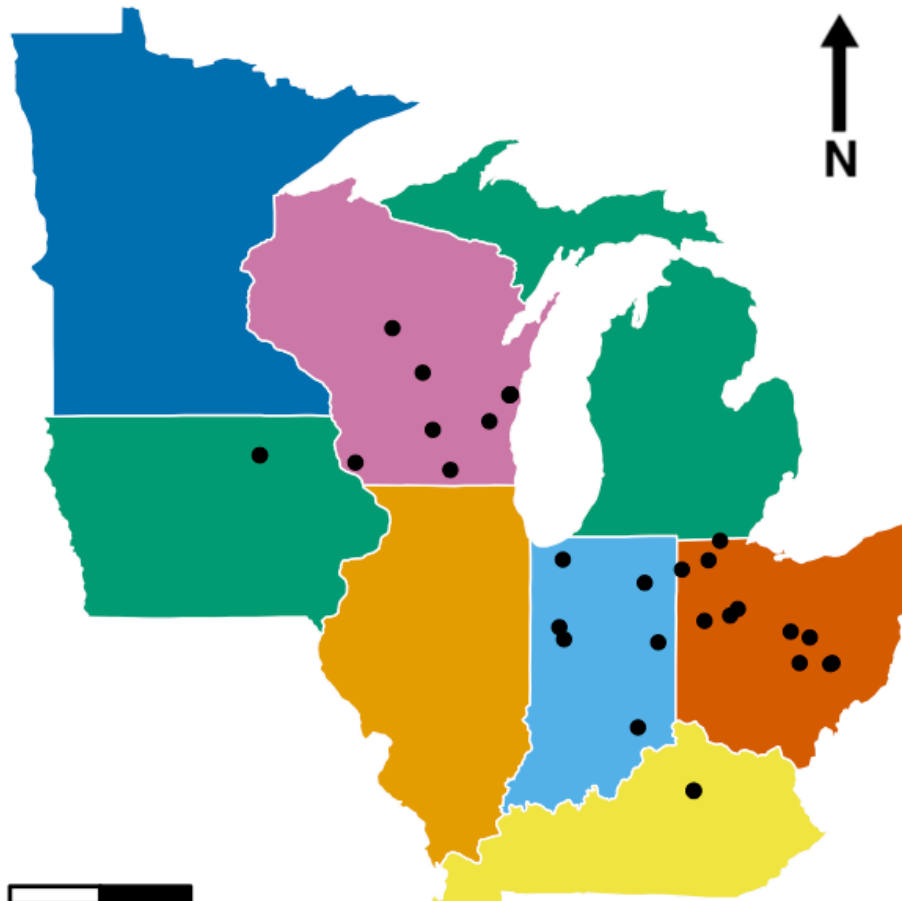
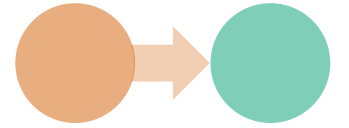
Soil Health Functions

1. Plant productivity
2. Provides physical support
3. Cycles nutrients
4. Water movement
5. Filters potential pollutants



Do biologically active soils produce greater yields than less active soils?

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0 150 300km

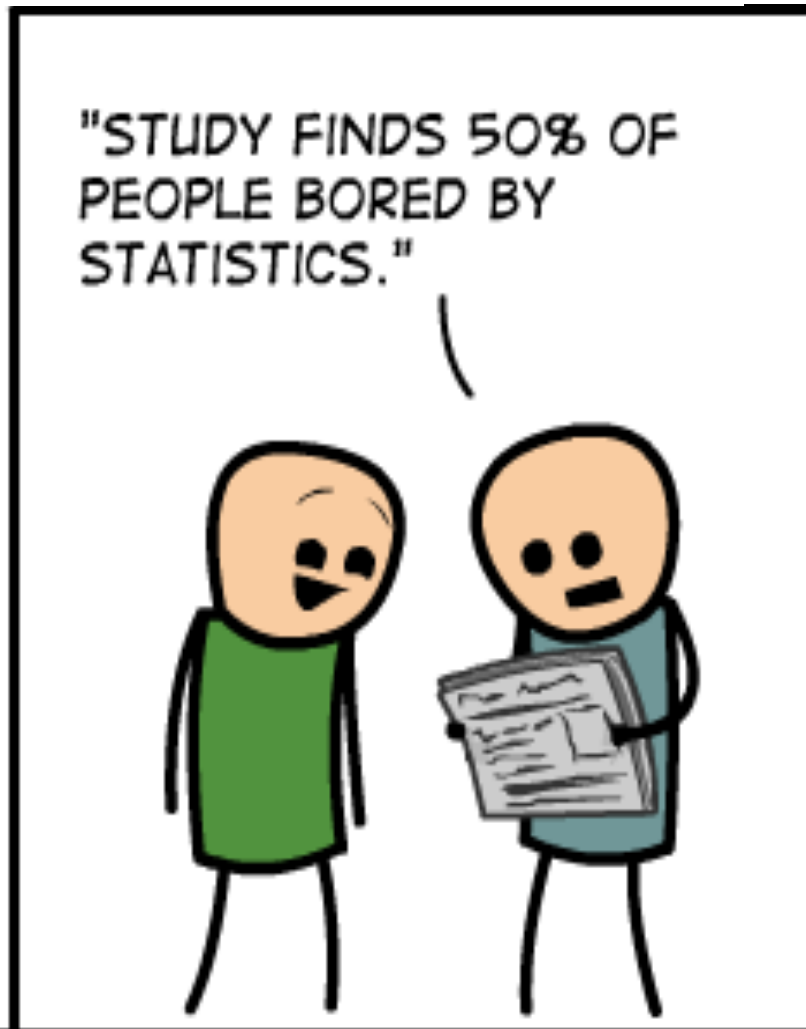
Overview

- Rainfed corn systems w/ replicated N rate trials
 - ~30 sites on farm and research trials

Soil health practices

- Cover crops
 - No covers, barley, rye, radish, clover
- Tillage
 - Chisel, moldboard, no-till
- Rotation length
 - Continuous corn, corn-soybean, corn-corn-soybean, and corn-corn-corn soybean, corn-soy-wheat, corn-wheat
- History of manure use

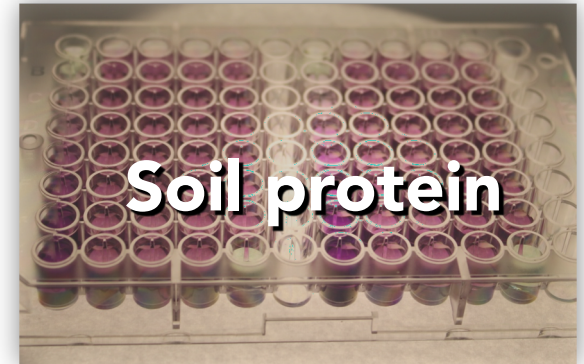
WARNING!

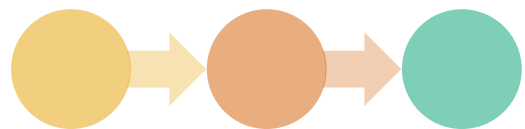


Measuring soil health

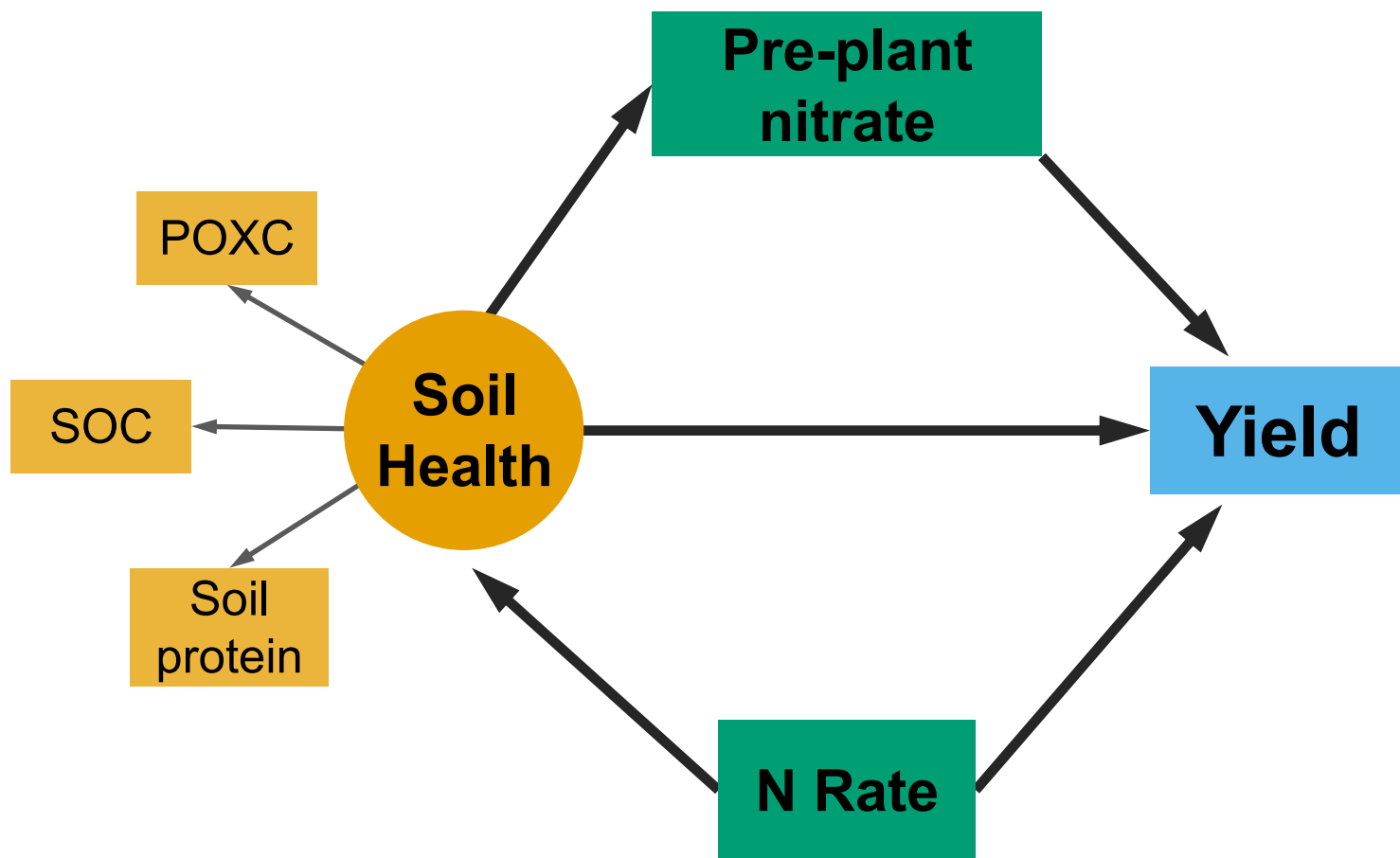
Soil health

- Not directly measured
- Comprised of multiple variables

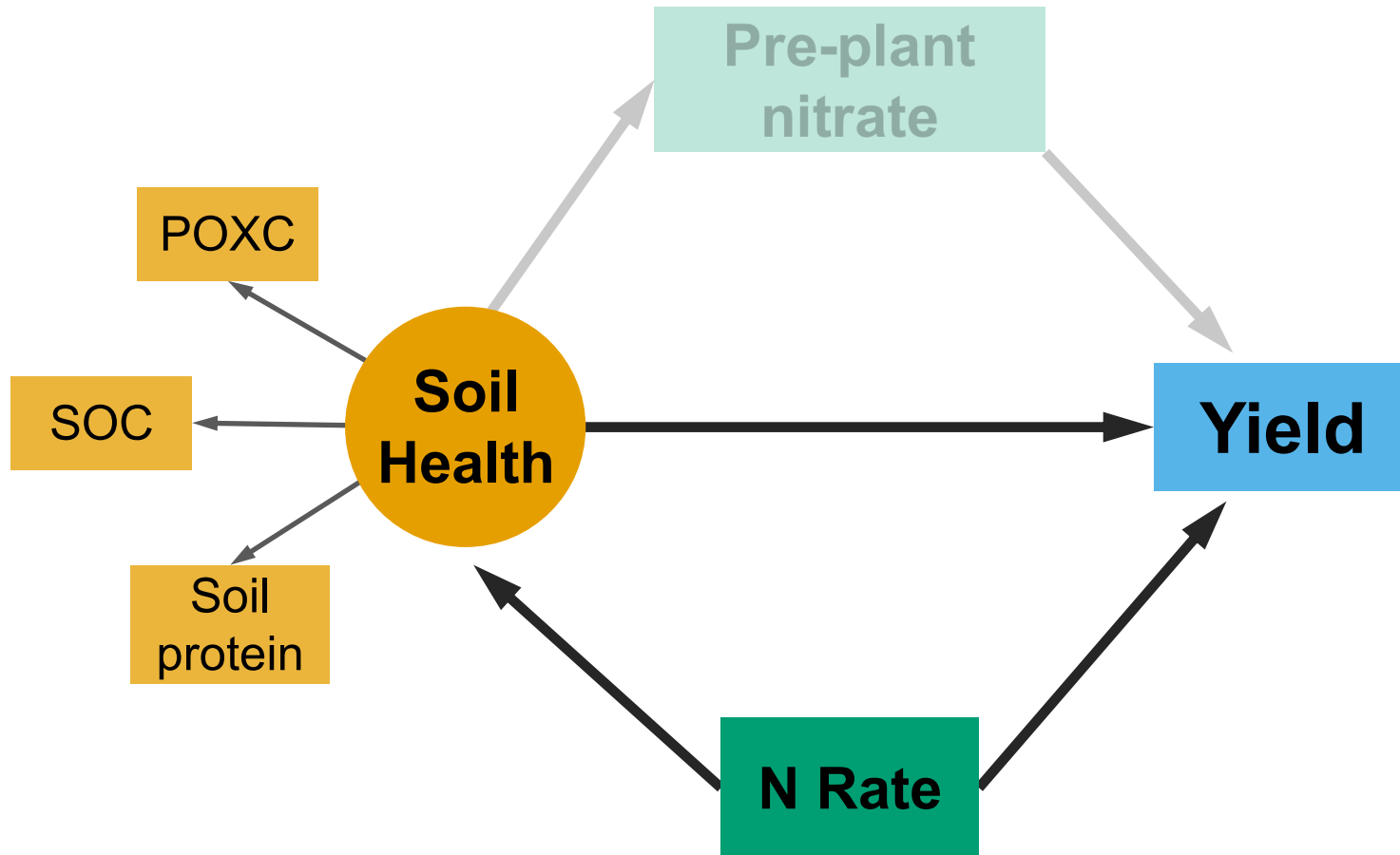
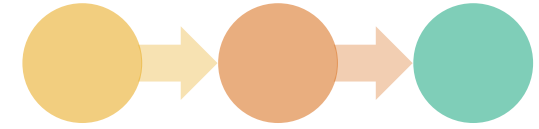




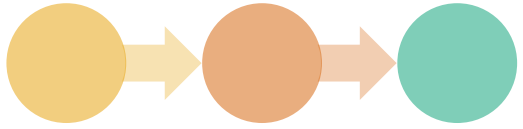
Putting it together



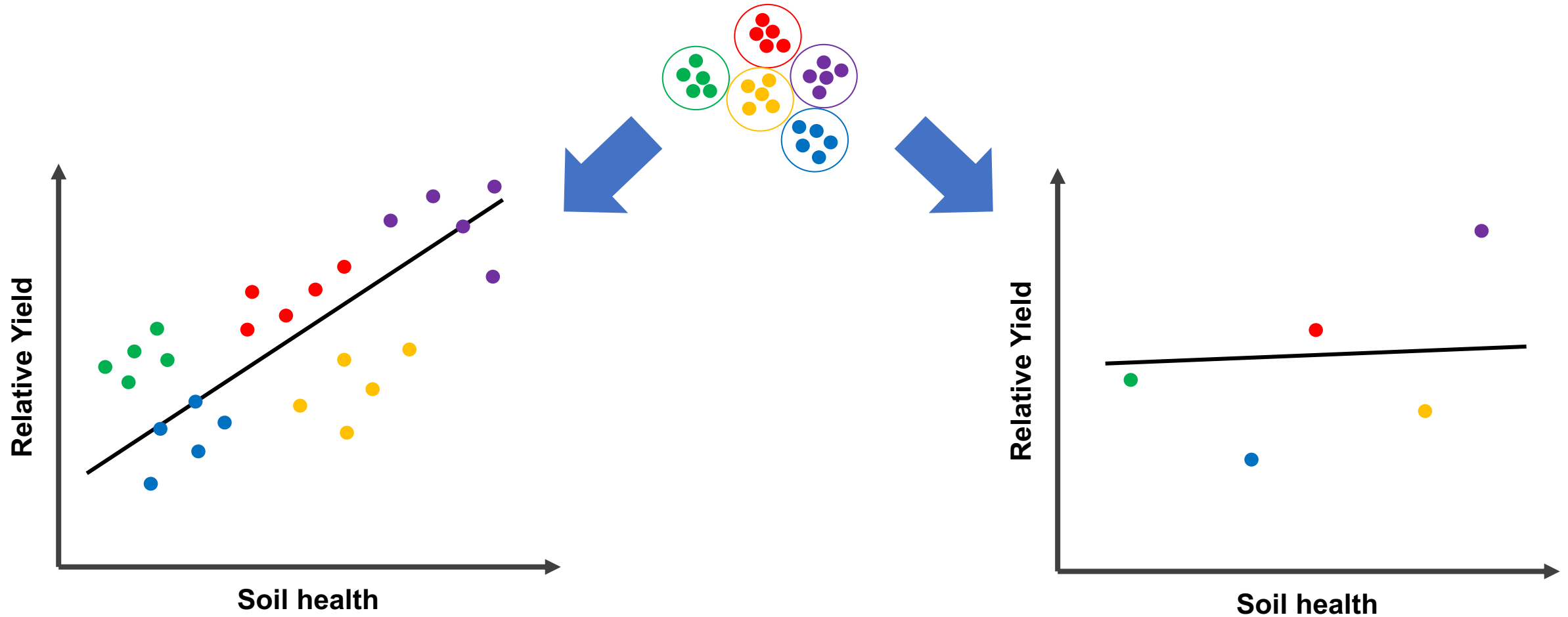
Findings

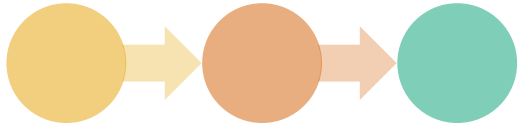


- Pre-plant nitrate wasn't strongly related to yields
- Improved soil health increases yields!
 - 10% increase in soil health = 5% relative increase in yields
- N fertilizer increases soil health

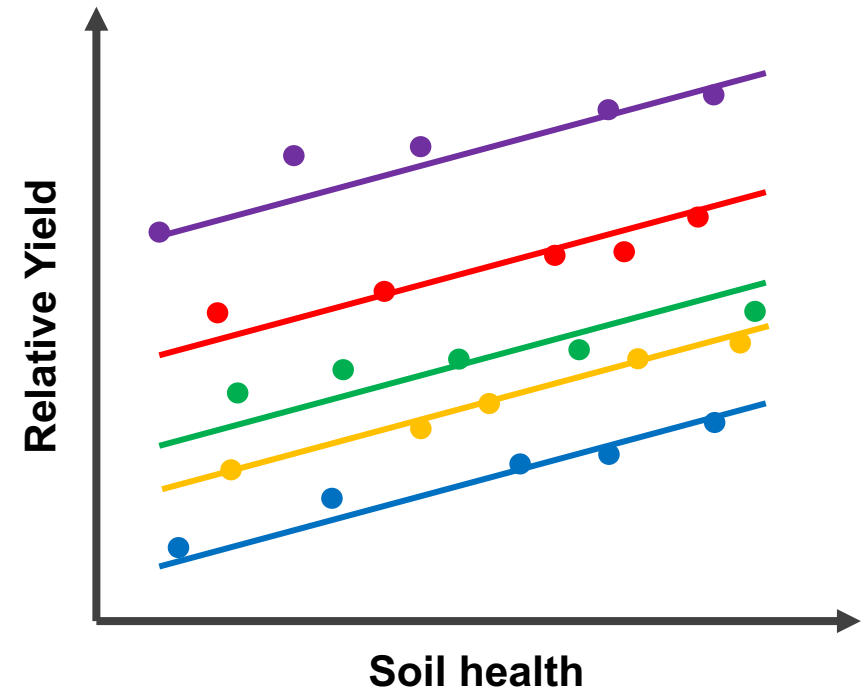
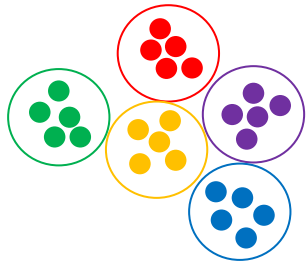


But wait... “every field is different”™!

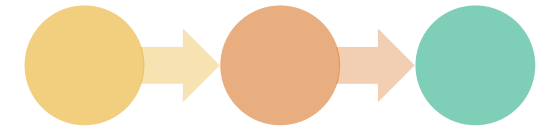




But wait... “every field is different”™!



Some FAQs



What management(s) should I use?

- It will depend - get your soil tested.

Where can I get my soil tested for soil health metrics?

- Commercial labs: Brookside (blinc.com) and Ward Labs (wardlab.com)
- University labs: Cornell (soilhealth.cals.cornell.edu) and University of Missouri (cafnr.missouri.edu/soil-health)

How do I interpret my soil test for N management?

- If you're sampling at the same time and using the same lab, you want your values of POXC, OM, and soil protein to be increasing.

How long are soil health tests applicable for N fertility decisions?

- We used average corn yield for up to 5 years after sampling – so a few.

How much less N can I apply?

- We don't have this kind of precision yet. Stay tuned!



Thank you!

Questions, comments, etc.