Soil Health: A Global Perspective

Brian Dougherty
2018 Nuffield Scholar
1briandougherty@gmail.com
Phone: (563) 239-7070
Twitter: @NEIowaAgEng
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The intersection of soil health, nutrient management, and water quality issues
Overview

What factors drive soil health efforts in other countries?
How does the U.S. compare?
Where are we headed?
Argentina & Chile

It’s still the “Wild West”

➢ Political and economic instability (high inflation, cash transactions)
➢ Essentially no government support for production agriculture
➢ Soil health efforts driven by *short-term profit*
Argentina: Best runoff comparison ever!

Siembra Directa vs Siembra Convencional

13/08/2003
Australia

Soil health focus is tied to water scarcity and salinity issues
➢ Minimal government support for production agriculture
➢ Soil CRC: 10-yr research project with $167 million funding
➢ Soil health efforts driven by *long term profit*
Canada – SE Ontario

Farmers are working hard to improve water quality in Lake Erie:

- No-till
- Cover crops
- Intercropping
Canada – SE Ontario

Soil health efforts driven by *water quality concerns*
New Zealand

Heavily regulated compared to the U.S. – focus on water quality
- Noticeable fear of regulation and among farmers
- Farmers are losing their ‘social license to operate’
- Minimal government support for agriculture - export dependent
- Soil health efforts driven by *regulations* and *public pressure*
EU Countries: France, UK, Ireland, Netherlands

Problems related to poor soil management
- Excessive tillage = poor soil cover and water infiltration = erosion
- Europeans have had thousands of years of practice!!
EU Countries: France, UK, Ireland, Netherlands

- Massive government support for production agriculture
  - “Greening” scheme payments for cover crops, permanent grassland, habitat plantings, diversified rotations, etc. etc.

- Laundry list of regulations to go with the payments
  - Requirements for field buffers, set-aside acreage, cover crop regulations, manure restrictions, production quotas, etc. etc.

- This is all subject to change: Common Agricultural Policy is expensive and Brexit has created chaos

- Lots of technology used to deal with excess manure nutrients

- Soil health efforts driven by *regulations* and *government support*
How the U.S. is different

Farmers here have it easy with soil and water quality regulations

➢ Reasonable (generous?) government support for agriculture
➢ Fewer environmental safeguards relative to other advanced countries
➢ Soil health and water quality efforts are mostly voluntary
➢ Requirements are flexible with minimal enforcement
How we are all the same

➢ Farmers are getting old
➢ Kids can’t afford to or don’t want to farm
➢ Small towns are dying
➢ Mostly conventional chemically-based agriculture
➢ We use technology to improve yield and mask soil degradation
➢ We try to convince ourselves that we are ‘leaving the land better than we found it’
➢ Farmers realize the current production model is broken
The exception

Farms using **regenerative, biologically based practices** were **thriving**, young people had **opportunity** and were **excited**, and farmers were having **fun** again

But it’s too much work and we can’t ‘feed the world’ that way!!??
Where are we headed?

Soil health hump

We are here

We need to get here

Innovators

Early Adopters

Early Majority

Late Majority

Laggards
Will we get over the soil health hump?

We will *because there is no other logical alternative*

Our future is bleak if we continue with current rates of soil degradation

\[ T \times 5 \text{ tons/acre} \]
How will we get there?

By combining the old with the new to capture more free sunlight, air, and water

The old - basic soil health principles:
- Keep it covered
- Don’t disturb it
- Always grow something
- Add diversity

The new - technology and innovation:
- Better planters
- Better soil health tests
- Better understanding of nutrient cycling
How will we get there?

Cover crops

Agroforestry

Relay/intercropping

Side-dress manure
How will we get there?

Better soil health tests

Holistic grazing

Perennial grains

Other ‘crazy’ ideas
How will we get there?

Experimentation
How will we get there?

1. Innovators and early adopters:
   - Will be more resilient and profitable
   - Will expand and replace poor managers

2. We will eventually change the farm bill to enable maximum production by supporting soil health rather than subsidize maximum production

“Americans can always be counted on to do the right thing - after they have tried everything else” – Winston Churchill
Recommendations

Get on the soil health train or get run over!!
✓ Learn to mimic nature on your farm
✓ Feed the soil – this is a paradigm shift
✓ Be an early adopter – try new ideas and learn from each other
✓ Have fun with it!
Recommendations

IF YOU’RE GONNA SCREW UP

AT LEAST MAKE THEM WONDER HOW YOU DID IT.
Thank you!

Questions or comments?