INTERPLAY OF MANURE AND COMPACTION: SOIL HEALTH

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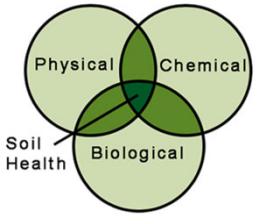

Practices that increase soil organic matter increase soil health

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SOIL ORGANIC MATTER IMPROVES SOIL HEALTH (PHYSICAL PROPERTIES)

- Increases water holding capacity
- Decreases compactibility
- Decreases bulk density

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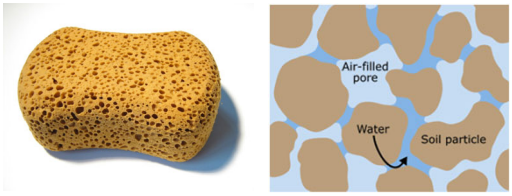
ORGANIC MATTER IS LIKE A SPONGE
AND SOIL MINERAL IS LIKE A BRICK



- An increase in OM *may* lead to increased water holding capacity
- Will reduce bulk density and compactibility

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BULK DENSITY
STATE OF COMPACTION OF SOIL

- Manure decreases bulk density by an average of 15% but its dependent on the amount of C added

Diacono and Montemurro, 2010

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COMPACTIBILITY
HOW SUSCEPTIBLE A SOIL IS TO COMPACTION

- Manure decreases penetration resistance compared to no amendment but no real difference compared to inorganic fertilizer

https://soilhealthinstitute.org/wp-content/uploads/2018/02/Schmidt-Report.pdf

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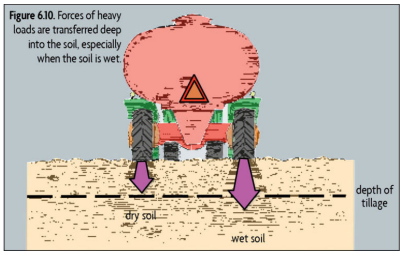
COMPACTIBILITY

HOW SUSCEPTIBLE A SOIL IS TO COMPACTION WHEN WET



- Manure increases resilience to compaction under wet conditions

Image from SARE
Blanco-Canqui et al. (2015) and Ekwue and Stone (1995)

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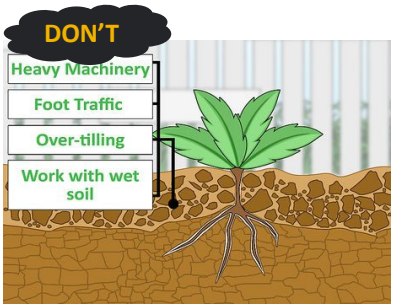
FOLLOW BMPS TO OPTIMIZE SOIL HEALTH BENEFITS

- Avoid applying when soil is wet
- Use control traffic
- Other principles discussed like tire pressure, equipment choice, etc.



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THUS, MANURE IMPROVES SOIL HEALTH (PHYSICAL PROPERTIES)

- Decreases bulk density
- Decreases compactibility
- Increases resiliency to compaction when wet

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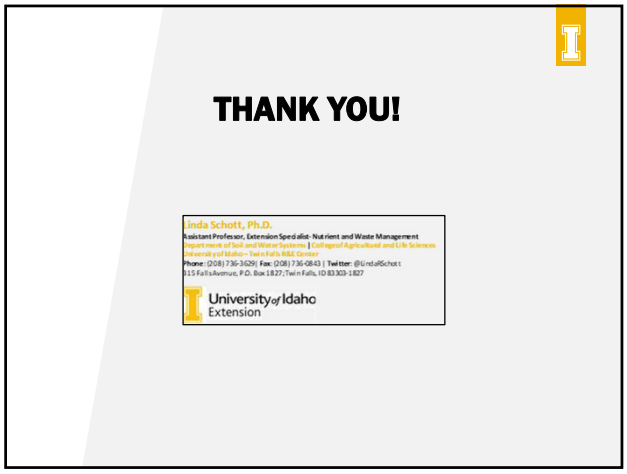

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