

Can Manure Improve Soil Health?

YES!

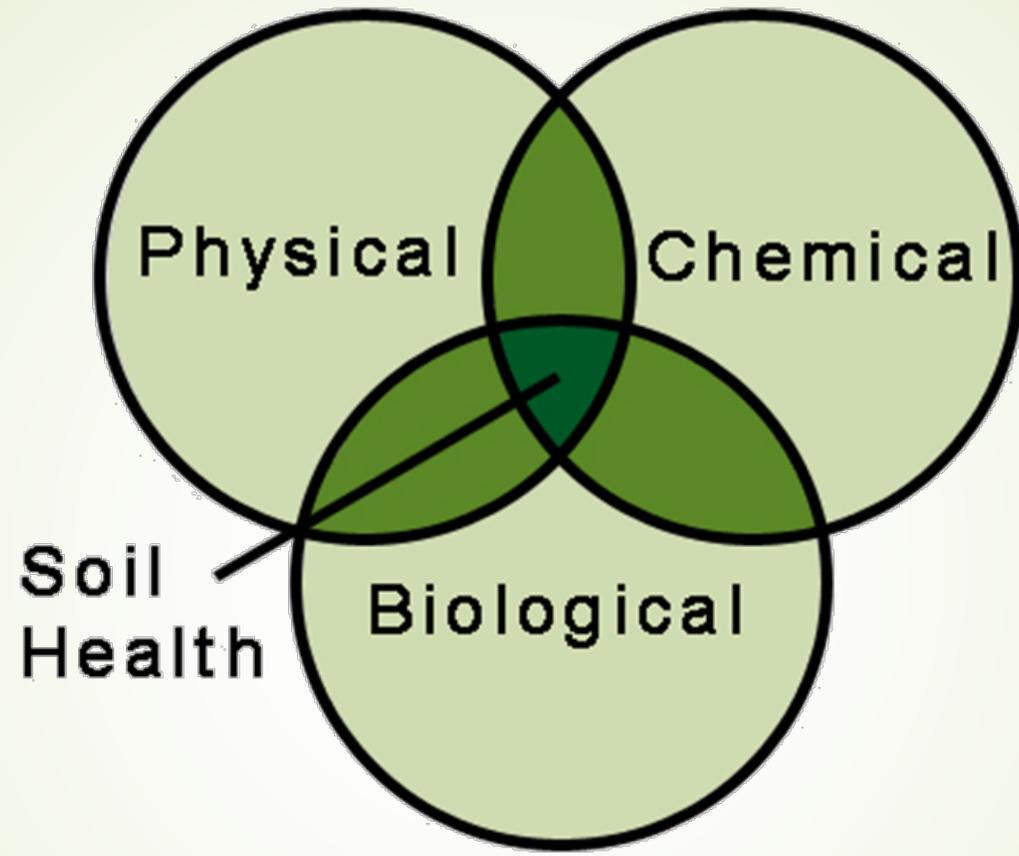


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Practices that increase soil organic matter increase soil health.

Soil organic matter improves soil health

Increases water holding capacity

Decreases compactibility

Increases nutrient cycling and nutrient retention

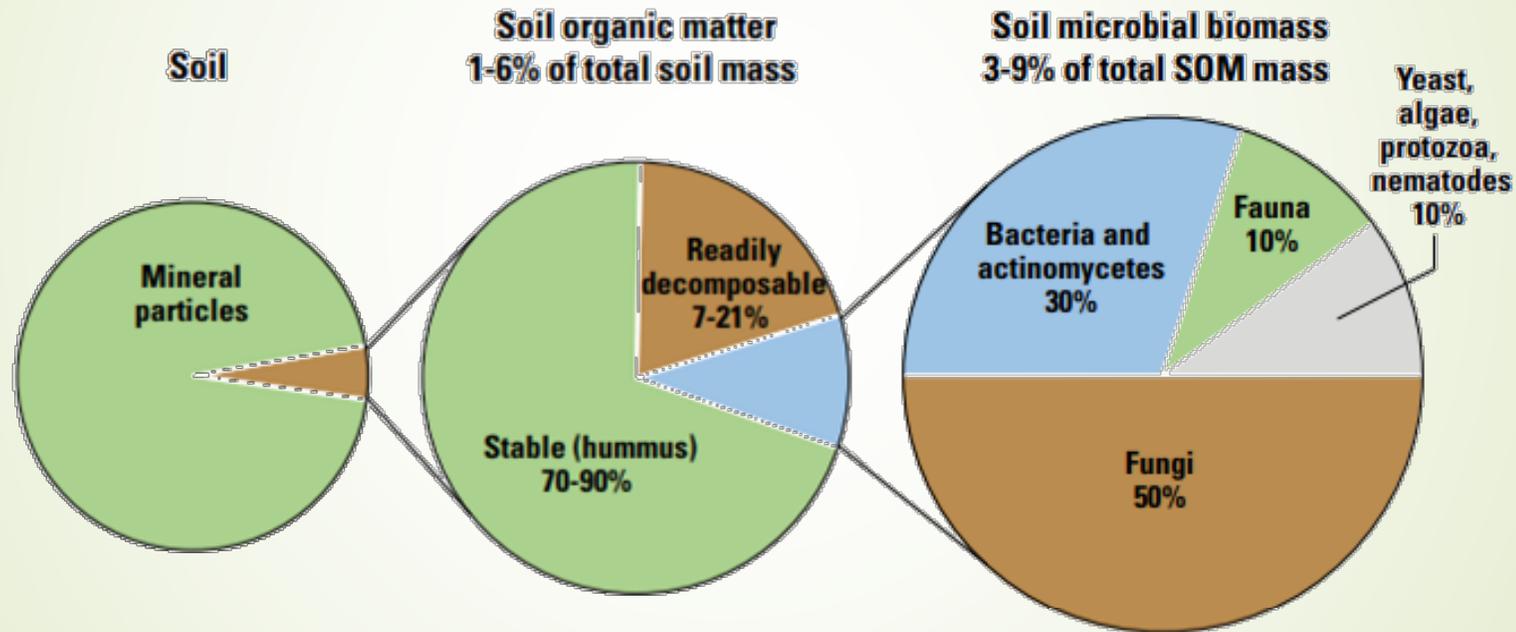
SOM is like a sponge, mineral soil is like a brick, and nutrients are like marbles.

How well does a brick hold water?

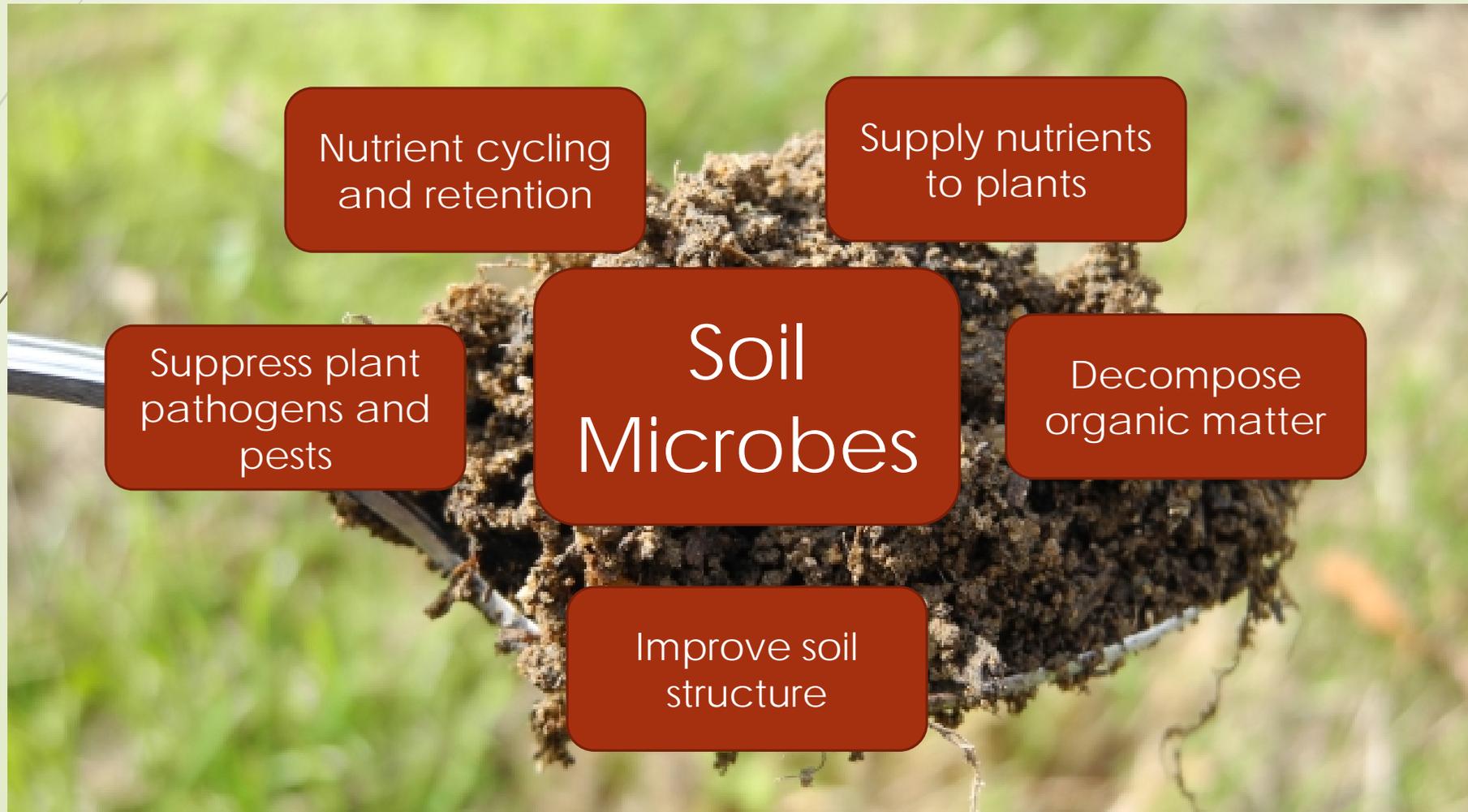
Does a brick "rebound" after being crushed?

How well do bricks hold onto marbles?

Microbes create and makeup soil organic matter



There are more microorganisms in a teaspoon of healthy soil than there are people on Earth!



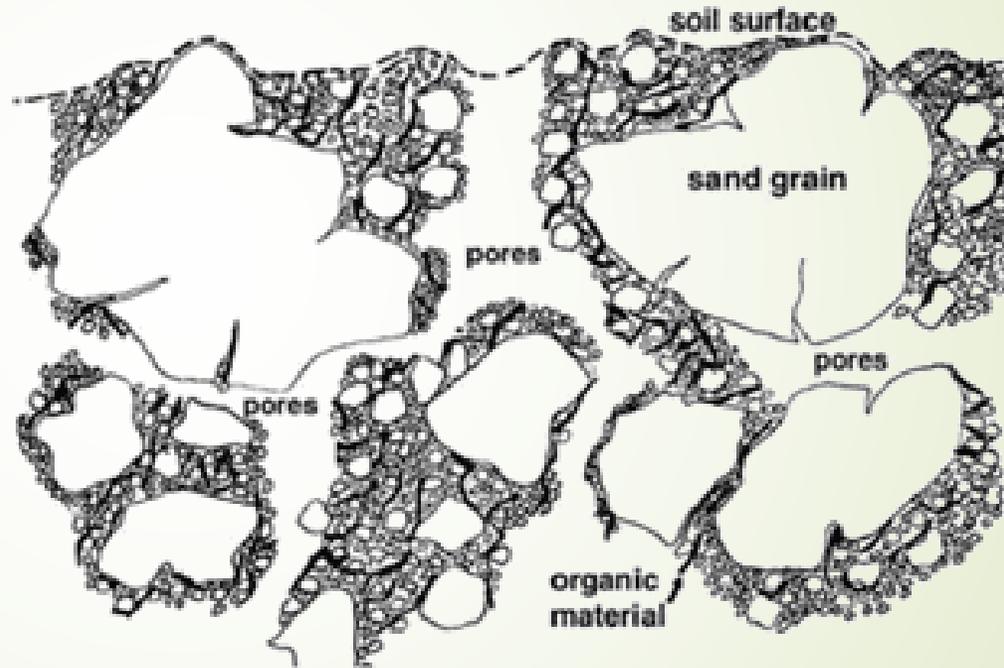
Microbes are like humans...



Food



Water



Suitable habitat

Manure increases soil biological populations compared to inorganic fertilizer.

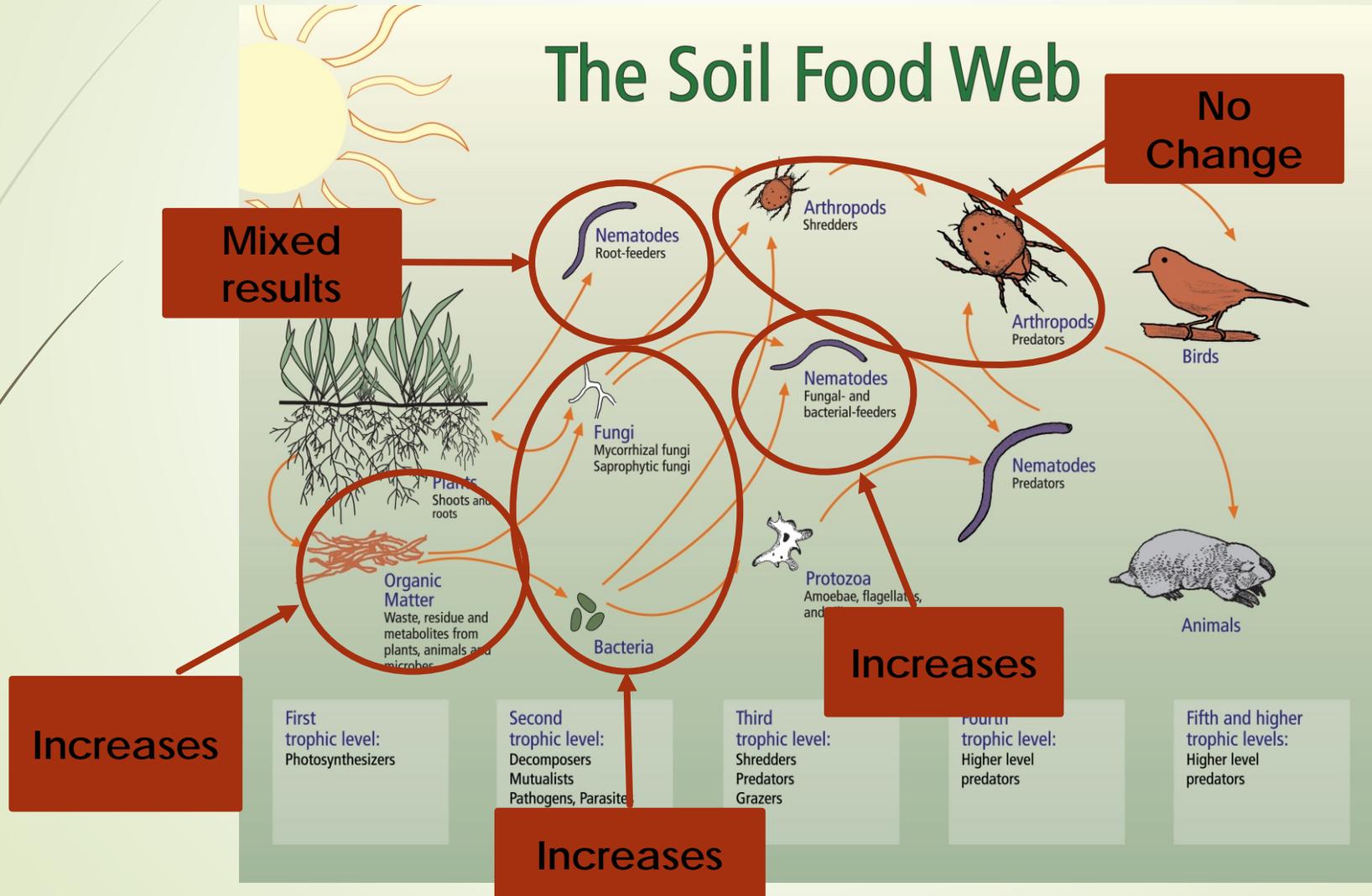
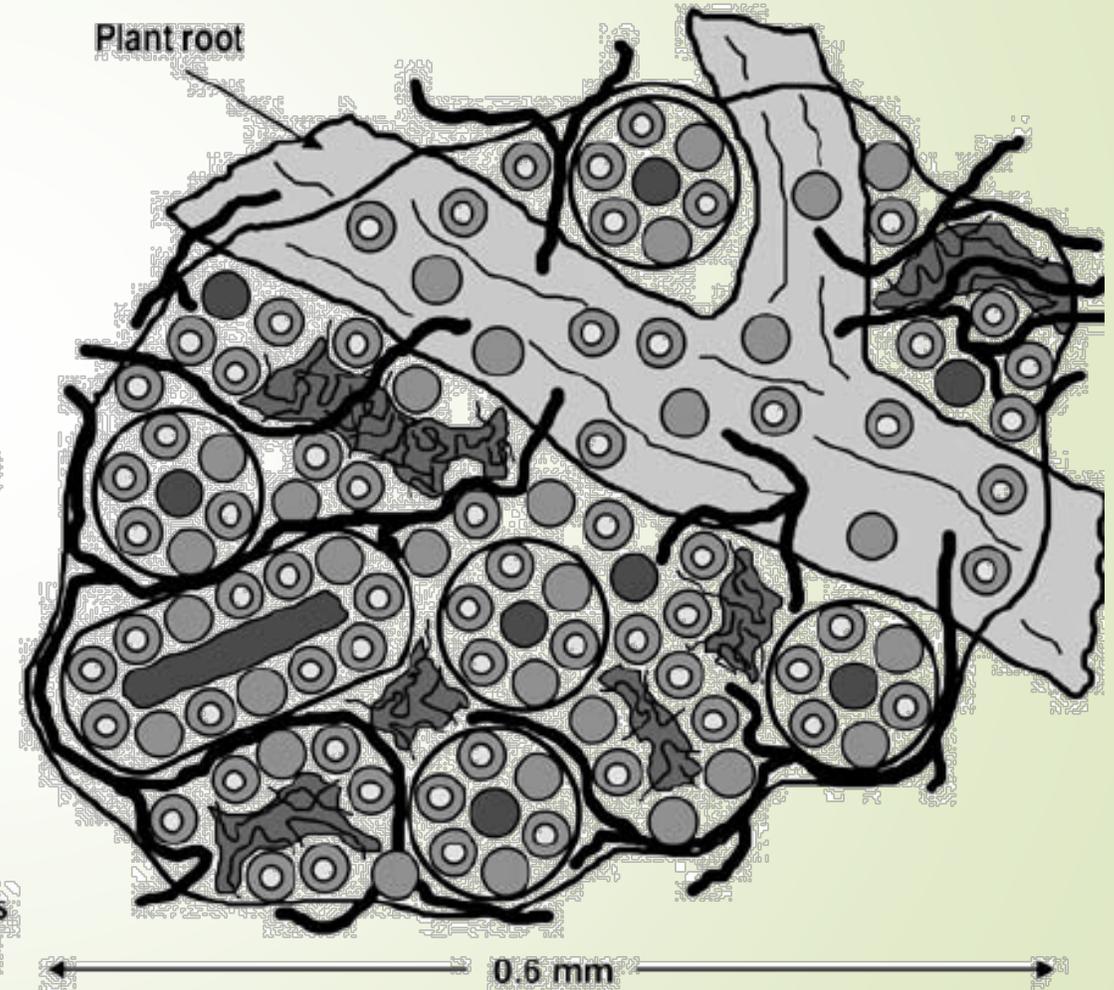
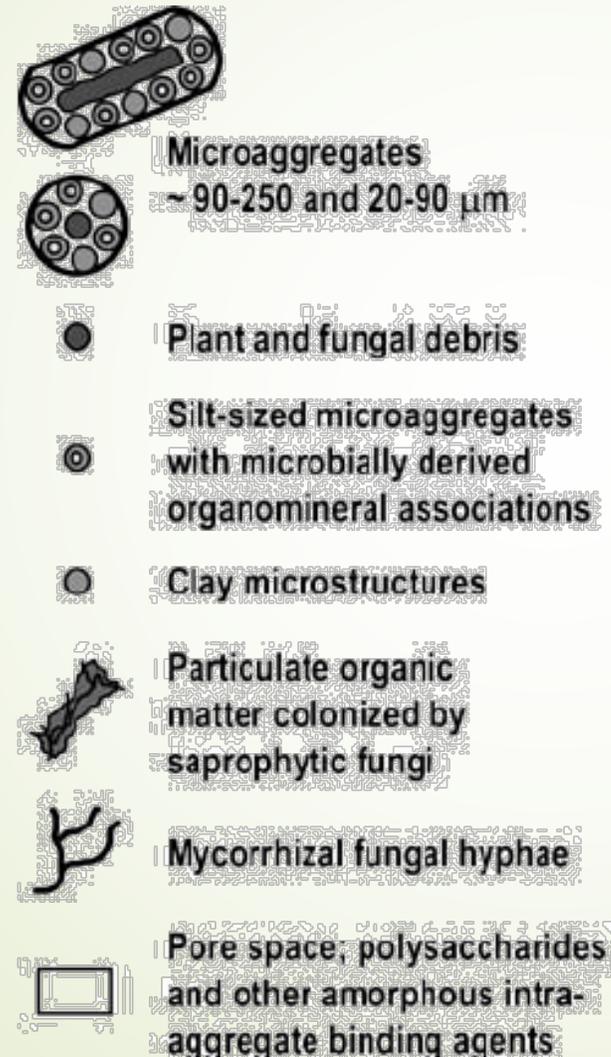


Figure from Ingham et al., 2000

Manure improves soil structure.

► Aggregation improves

- Fungal hyphae "tie" soil particles together
- Microbial byproducts "glue" soil particles together

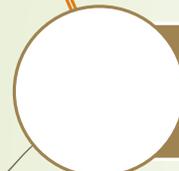




Thus, manure improves soil health.



Increases water holding capacity



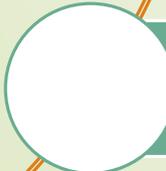
Decreases compactibility



Increases nutrient cycling and nutrient retention



Decreases bulk density



Increases aggregate stability

Acknowledgements

The full report "*Synthesis of Short- and Long-term Studies Reporting Soil Quality Metrics under Agricultural and Municipal Biosolid Applications*" can be found at:
<https://soilhealthnexus.org/resources>

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