

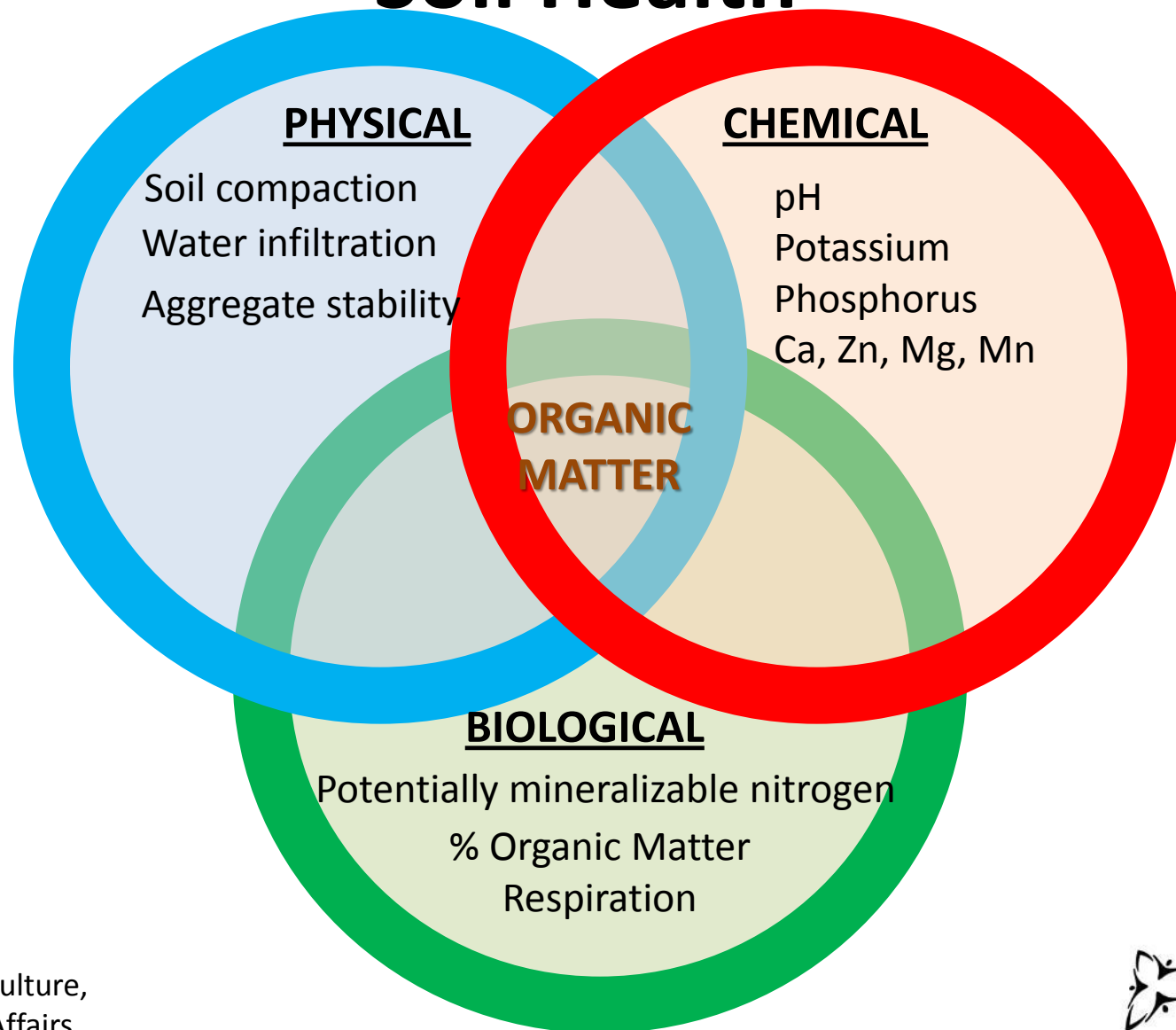
# Soil Physical Properties



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Soil Health Research  
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# Soil Function, Soil Properties and Soil Health



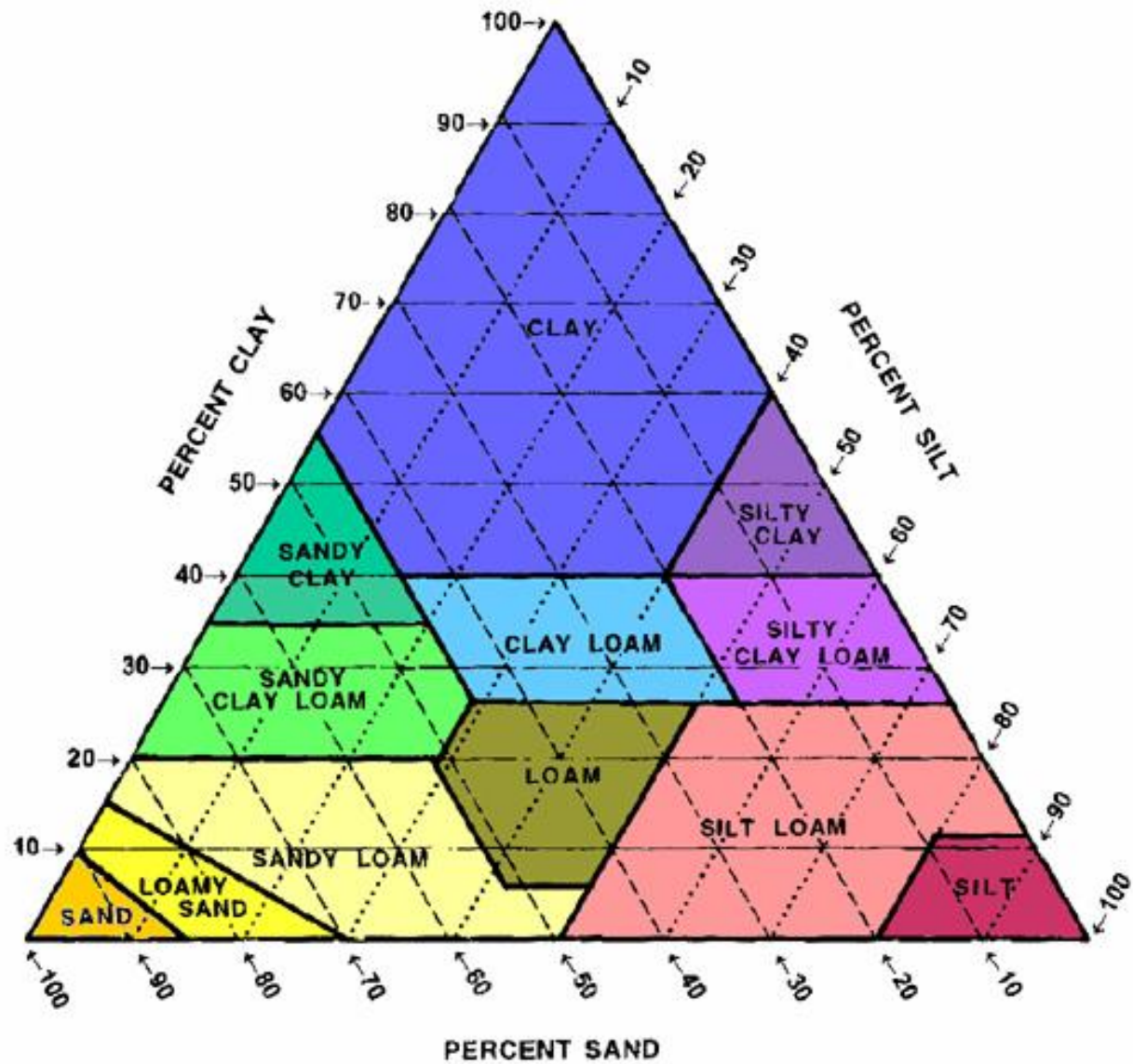
# Soil Physical Properties

- Soil texture
- Soil structure
- Aggregate stability
- Bulk density
- Available water capacity
- Soil colour

# Soil Texture

Mineral fraction:

- Stones
- Gravel
- Sand (very fine to coarse) – 0.05 to 2.0 mm
- Silt – 0.002 to 0.05 mm
- Clay -  $< 0.002$  mm

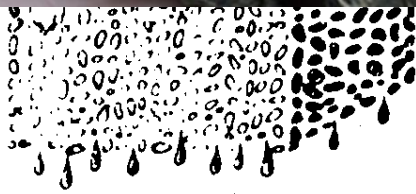


# Soil Structure

Granular

Prismatic

Massive





# Aggregate Stability



# Bulk Density

- The mass of a certain volume of soil
- Includes solids and pores
- Sands 1.4 - 1.6 g/cm<sup>3</sup>
- Other soils 1.2 – 1.4 g/cm<sup>3</sup>
- Compacted soil up to 1.7 g/cm<sup>3</sup>



# Available Water Capacity

- The quantity of water a soil can store for plant use
- Calculated as the difference between water stored at field capacity and the wilting point

# Available Water Capacity

| Texture    | O.M. | Clay | Silt | Available Water |
|------------|------|------|------|-----------------|
| Sands      | 1.2  | 3.3  | 2.6  | 2.9             |
| Sandy loam | 1.8  | 10.3 | 35.8 | 9.7             |
| Loam       | 2.4  | 9.0  | 44.8 | 11.1            |
| Silt loam  | 2.3  | 5.9  | 52.1 | 10.7            |
|            | 4.5  | 17.4 | 56.2 | 18.8            |
| Clay loam  | 5.1  | 31.1 | 37.2 | 8.0             |

# Soil Profile



**Thanks!**

