

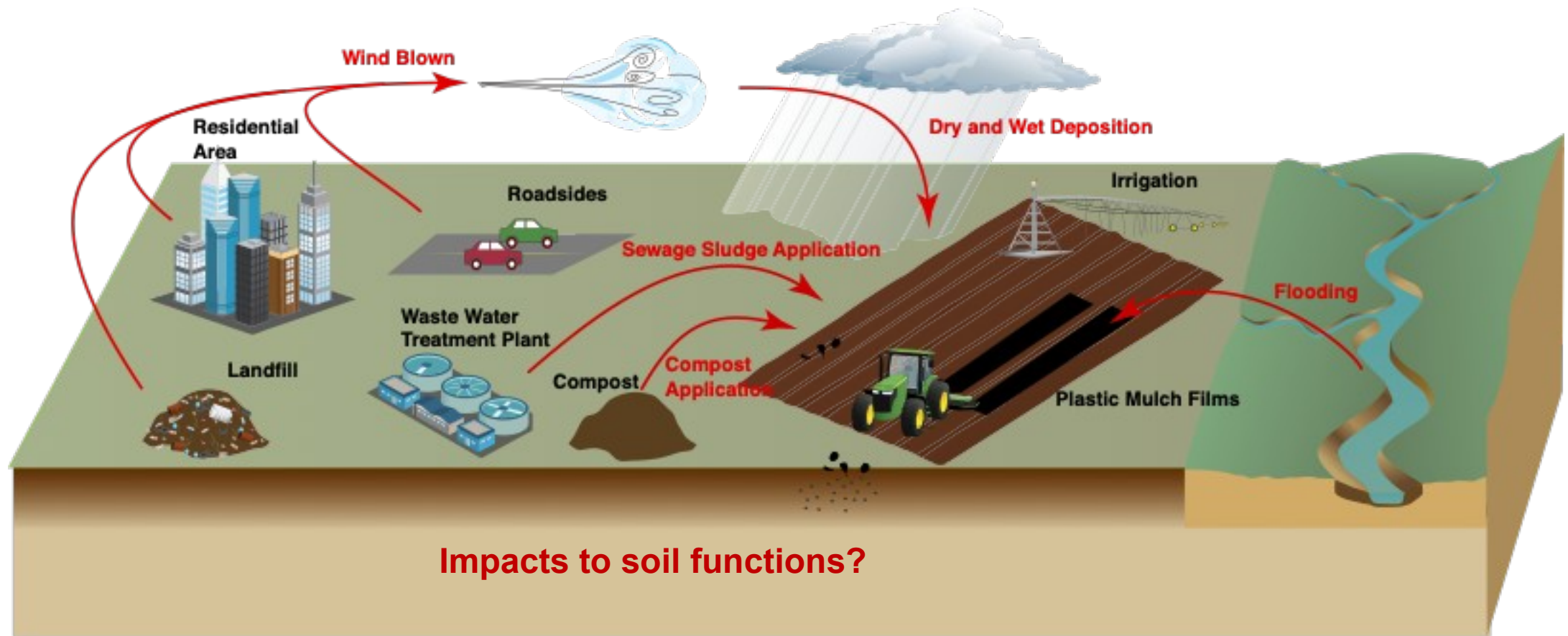


# Effects of Microplastics on Soil Hydraulic Properties

Yingxue Yu and Markus Flury

May 25, 2022

# Agricultural Soil—Reservoir of Microplastics

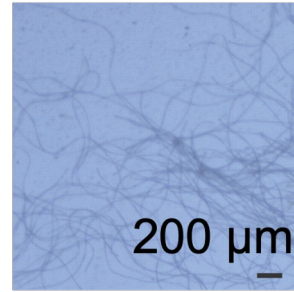
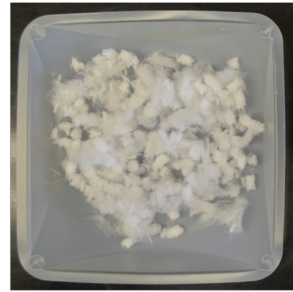




# Microplastics

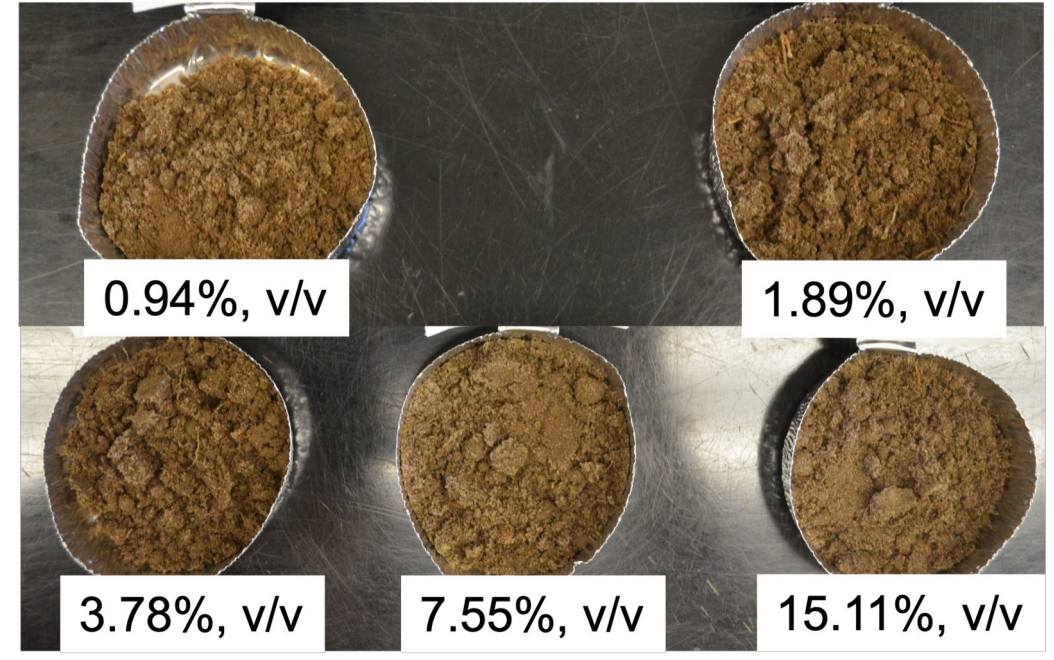
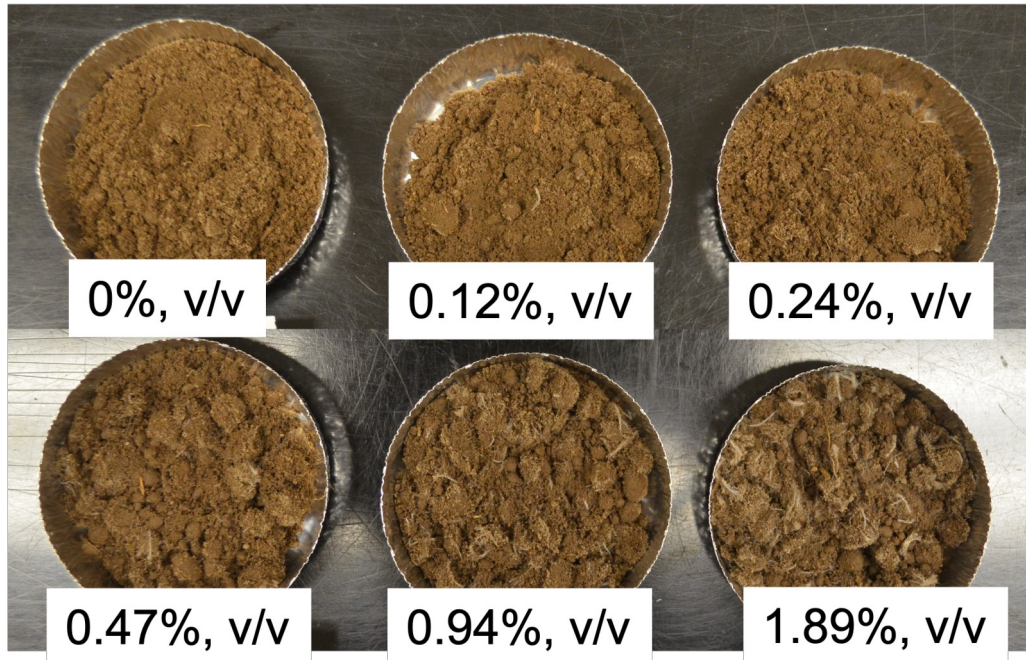
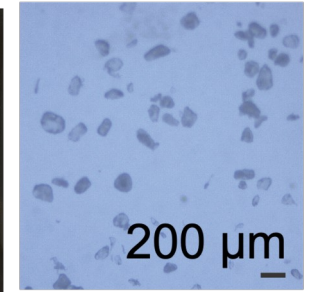
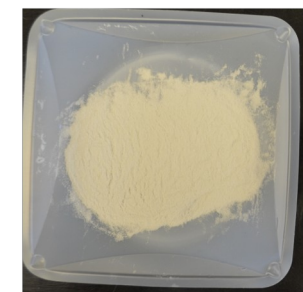
## Polyester Fibers

8  $\mu\text{m}$  in diameter  
5 mm in length



## Polypropylene Granules

53~125  $\mu\text{m}$   
mean = 81  $\mu\text{m}$

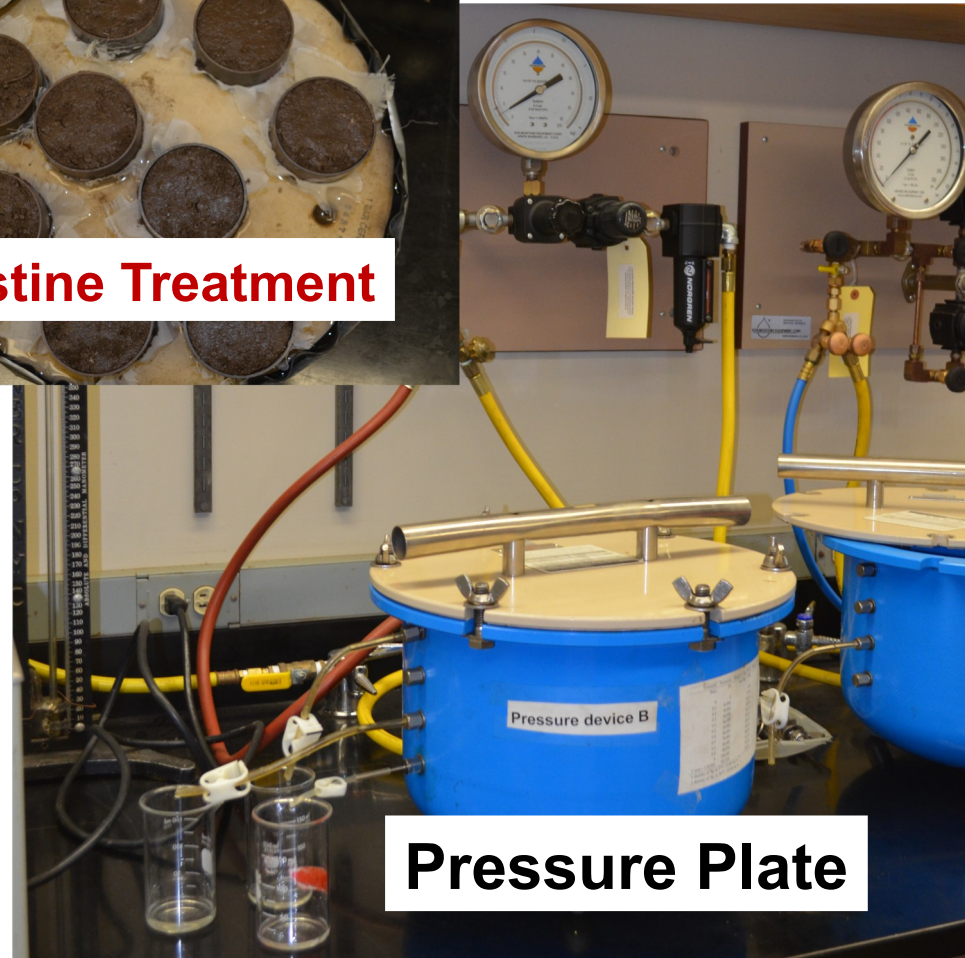




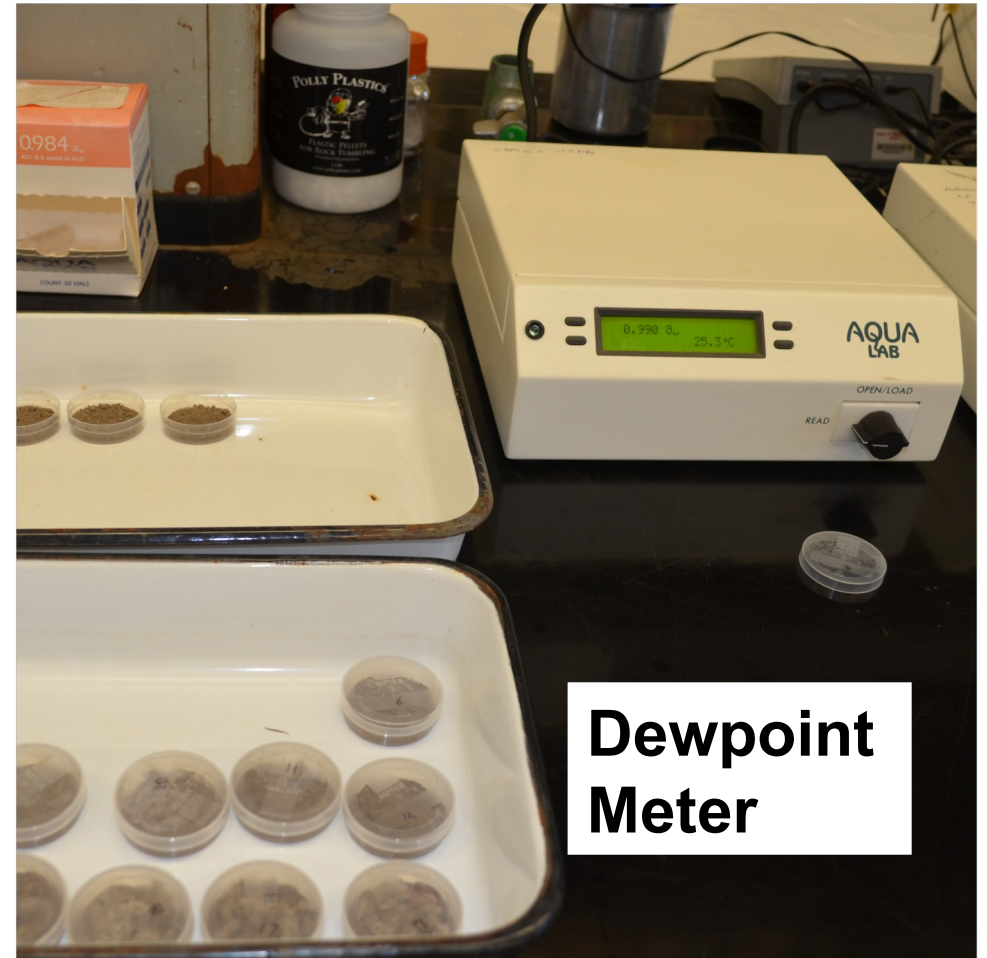
# Field Capacity and Permanent Wilting Point



**Pristine Treatment**



**Pressure Plate**

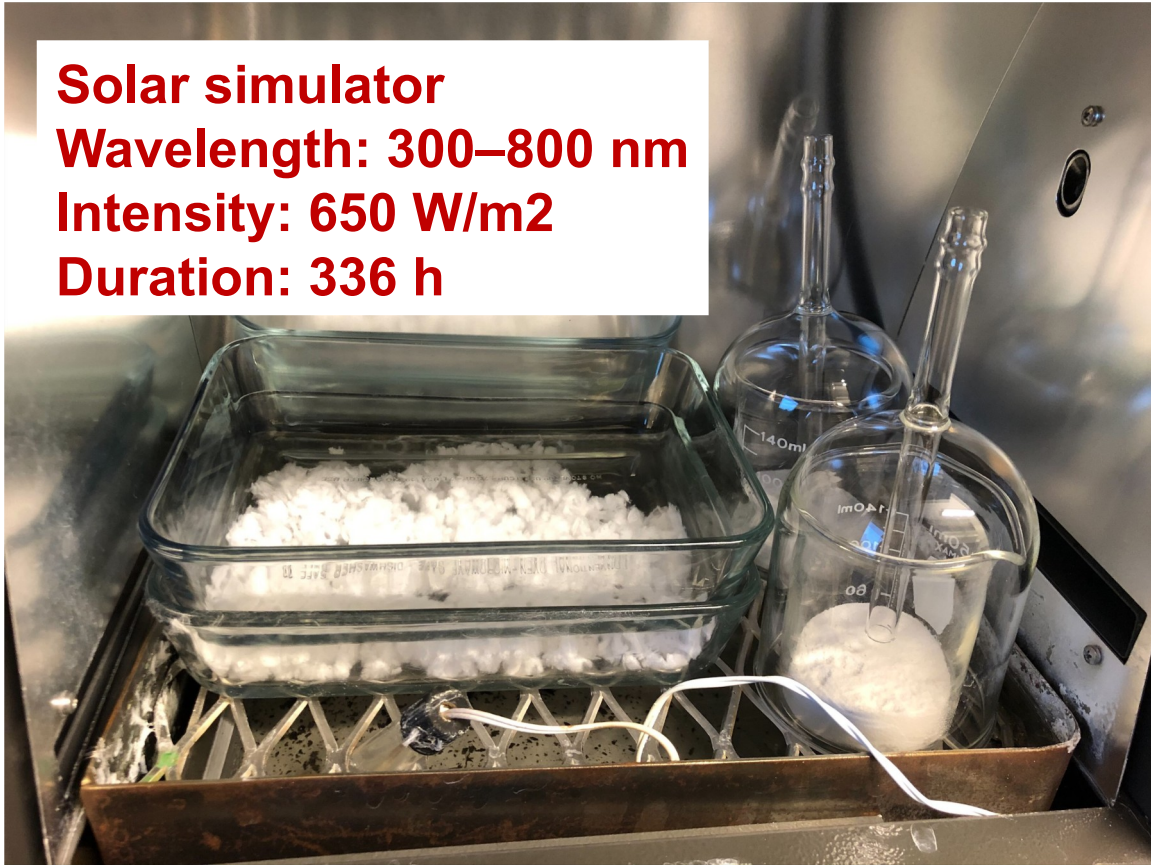


**Dewpoint Meter**



# Effect of Natural Weathering

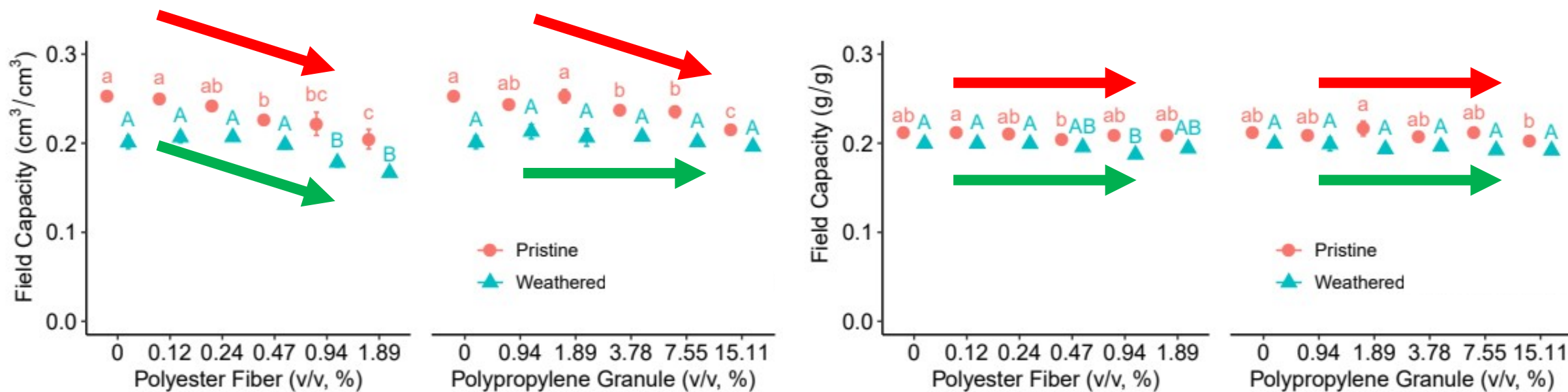
**Solar simulator**  
**Wavelength: 300–800 nm**  
**Intensity: 650 W/m<sup>2</sup>**  
**Duration: 336 h**



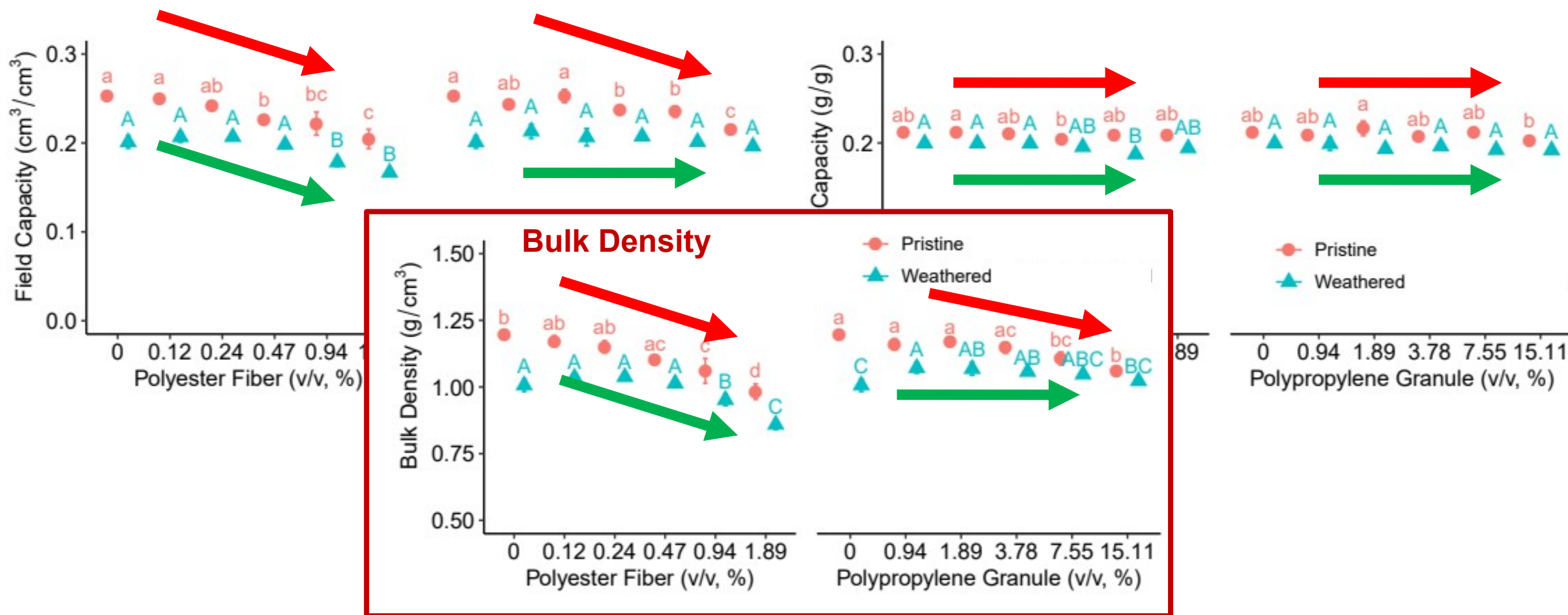
**Burial in field**  
**Duration: 50 days**



# Volumetric and Gravimetric Field Capacity

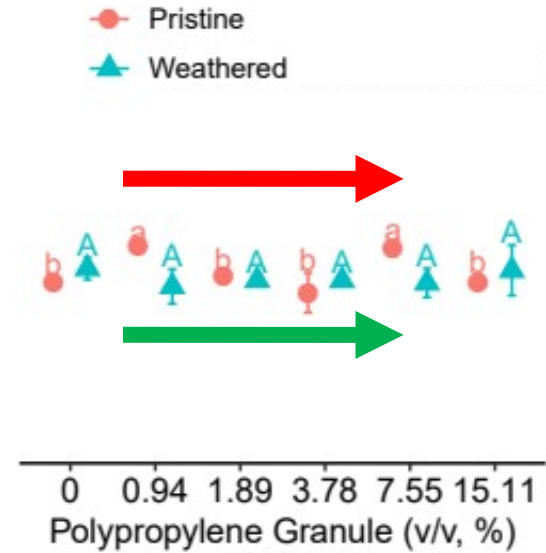
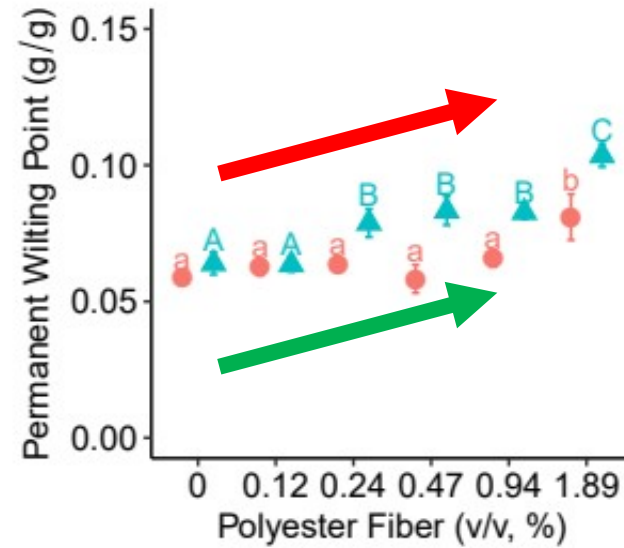
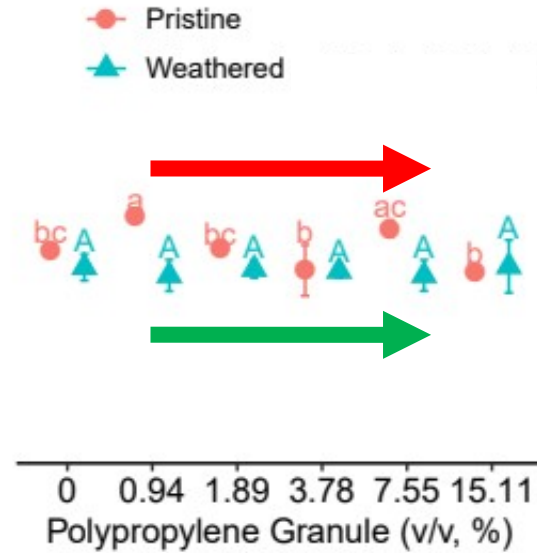
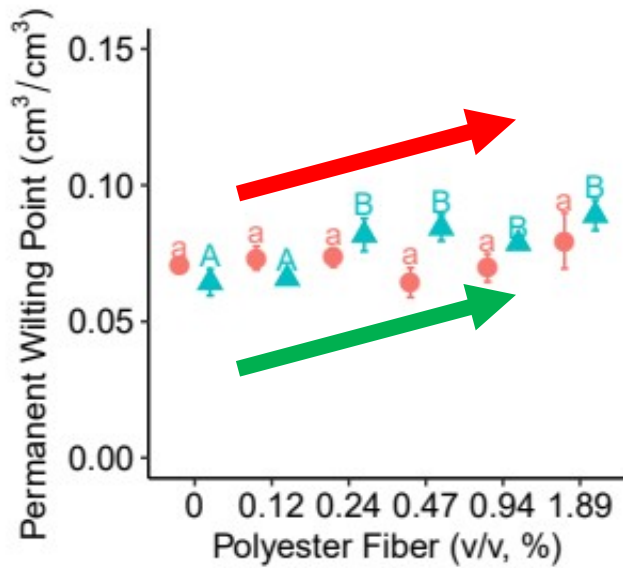


# Volumetric and Gravimetric Field Capacity



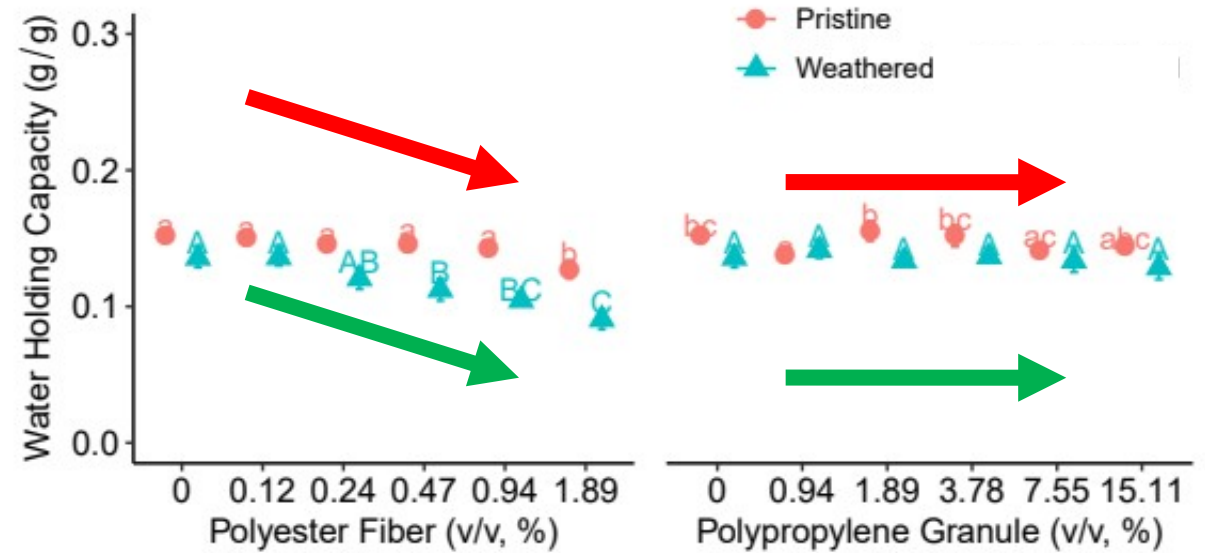
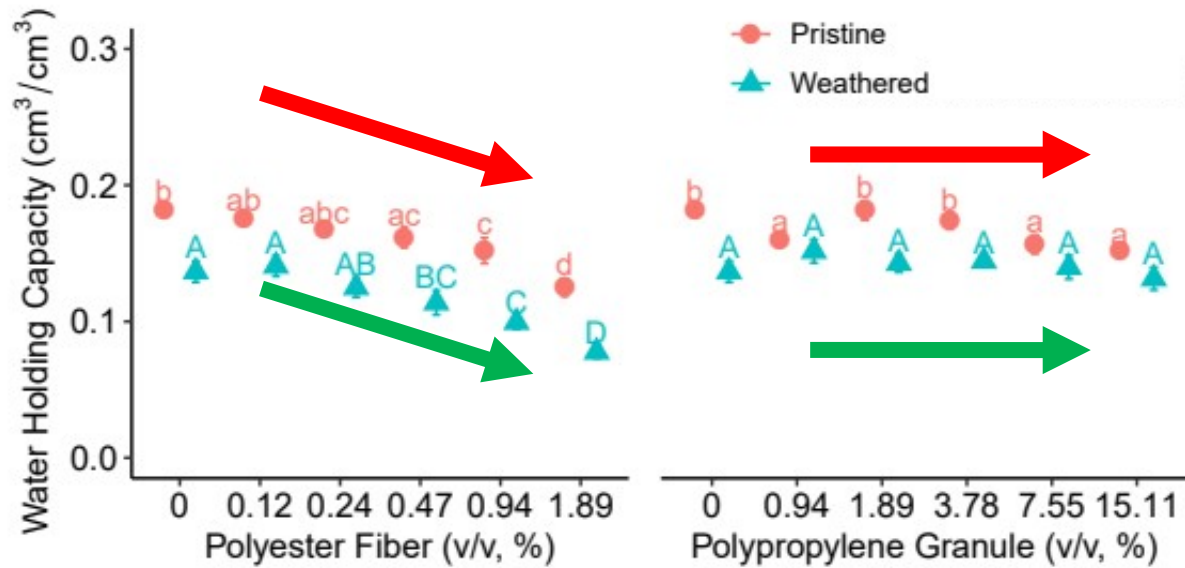


# Volumetric and Gravimetric Permanent Wilting Point





# Volumetric and Gravimetric Water Holding Capacity



# Volumetric and Gravimetric Water Holding Capacity

