



SOIL FERTILITY FUNDAMENTALS

EXTERNAL/ENVIRONMENTAL INFLUENCES



Influences

- Weather – light, temperature, moisture, wind, pressure
- Contaminants
- Vectors

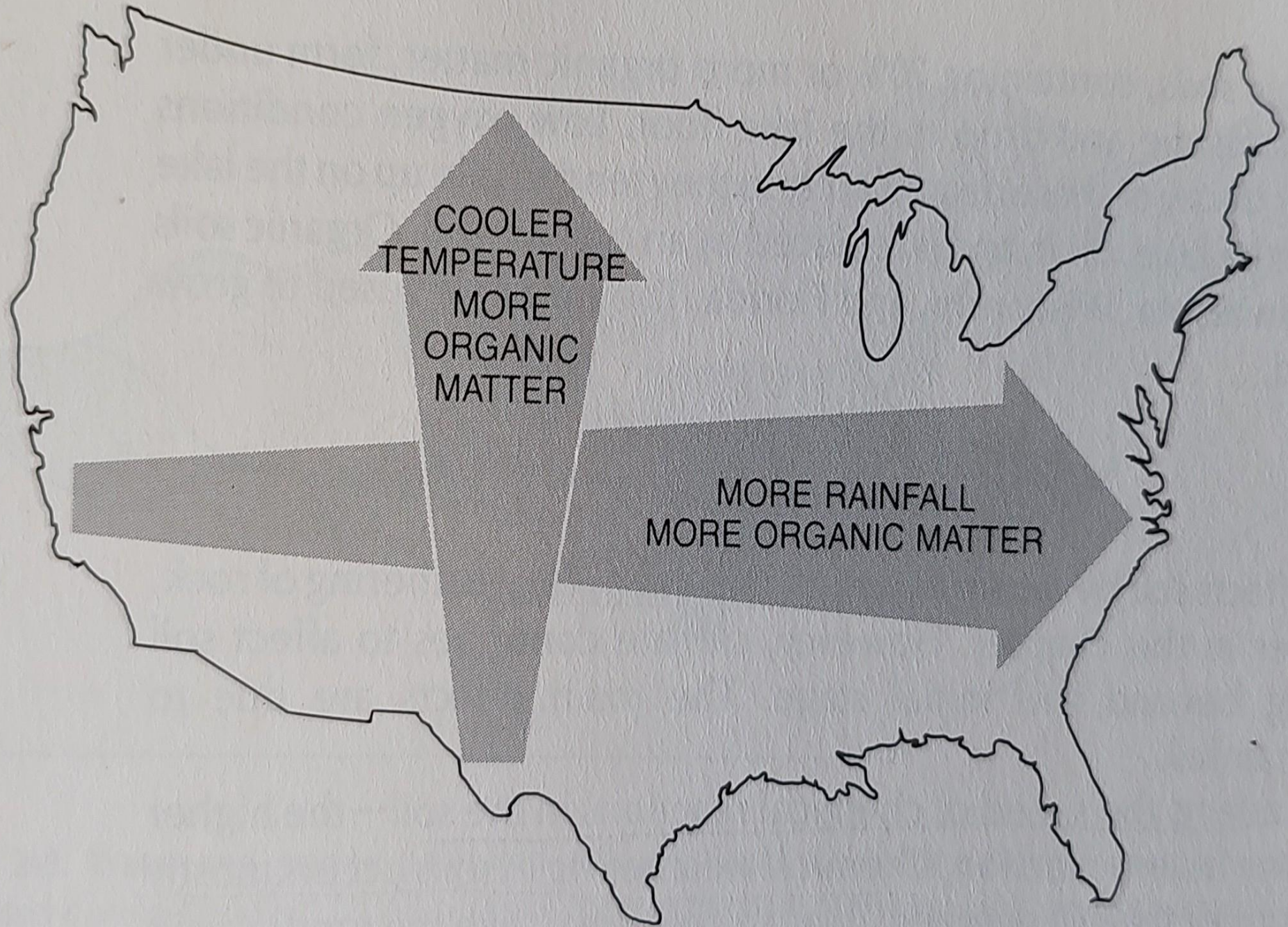


Weather: Light


A rural landscape featuring a field of green corn plants in the foreground. A dirt road runs through the field. In the background, there is a barn, a large tree, and a line of trees under a bright sky.

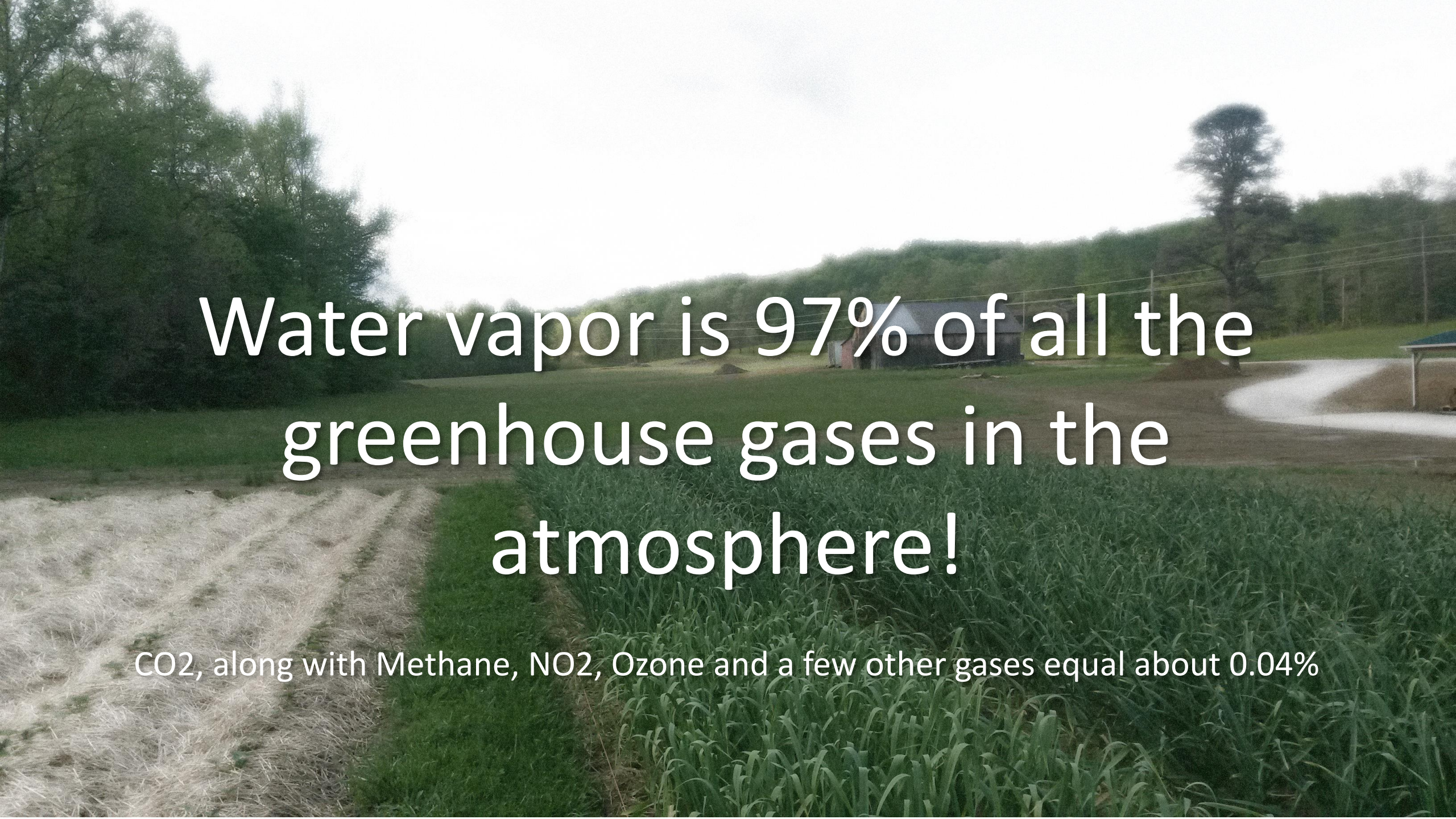
Weather: Temperature

- Effect on plants
- Effect on soil



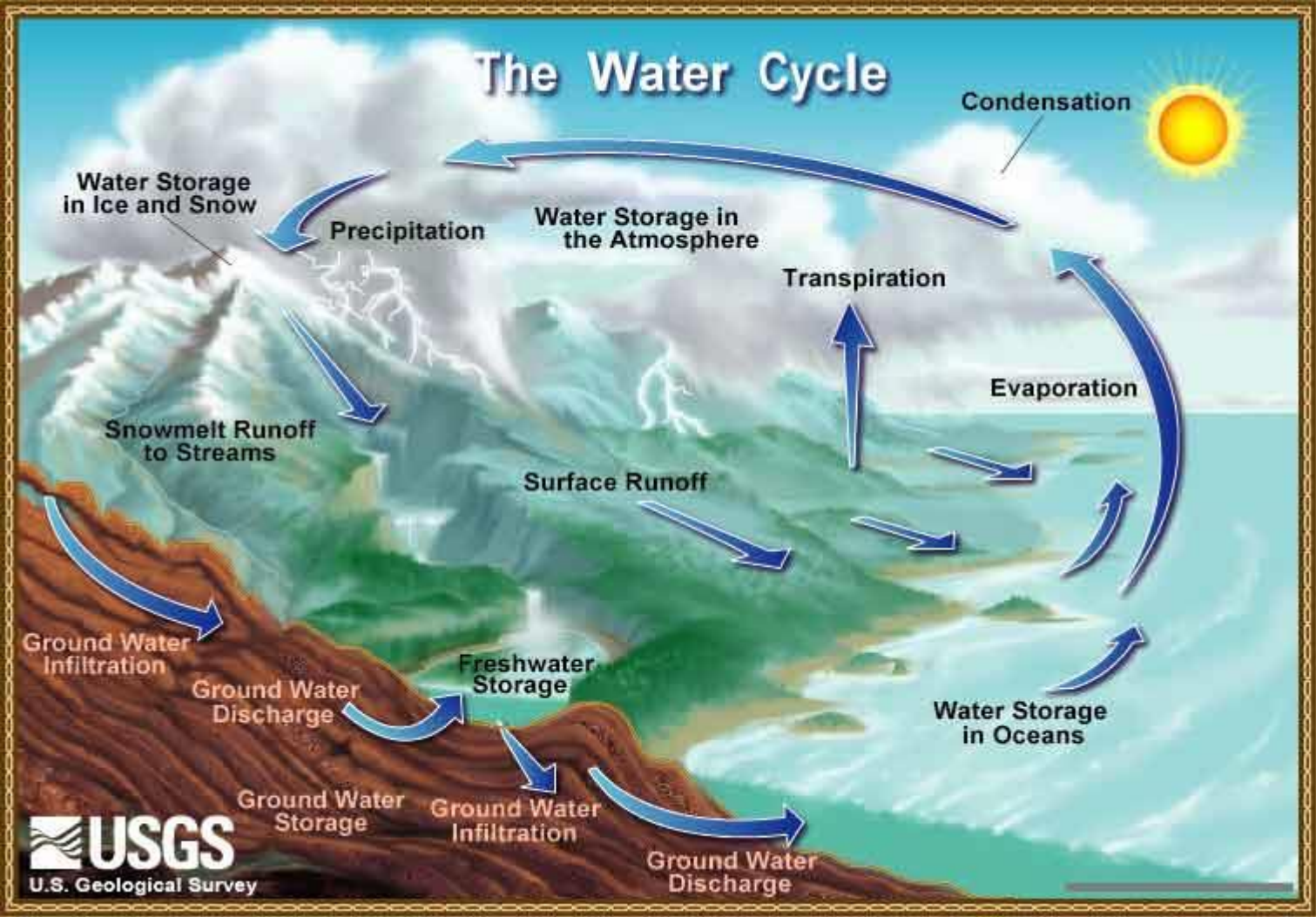
Weather: Moisture

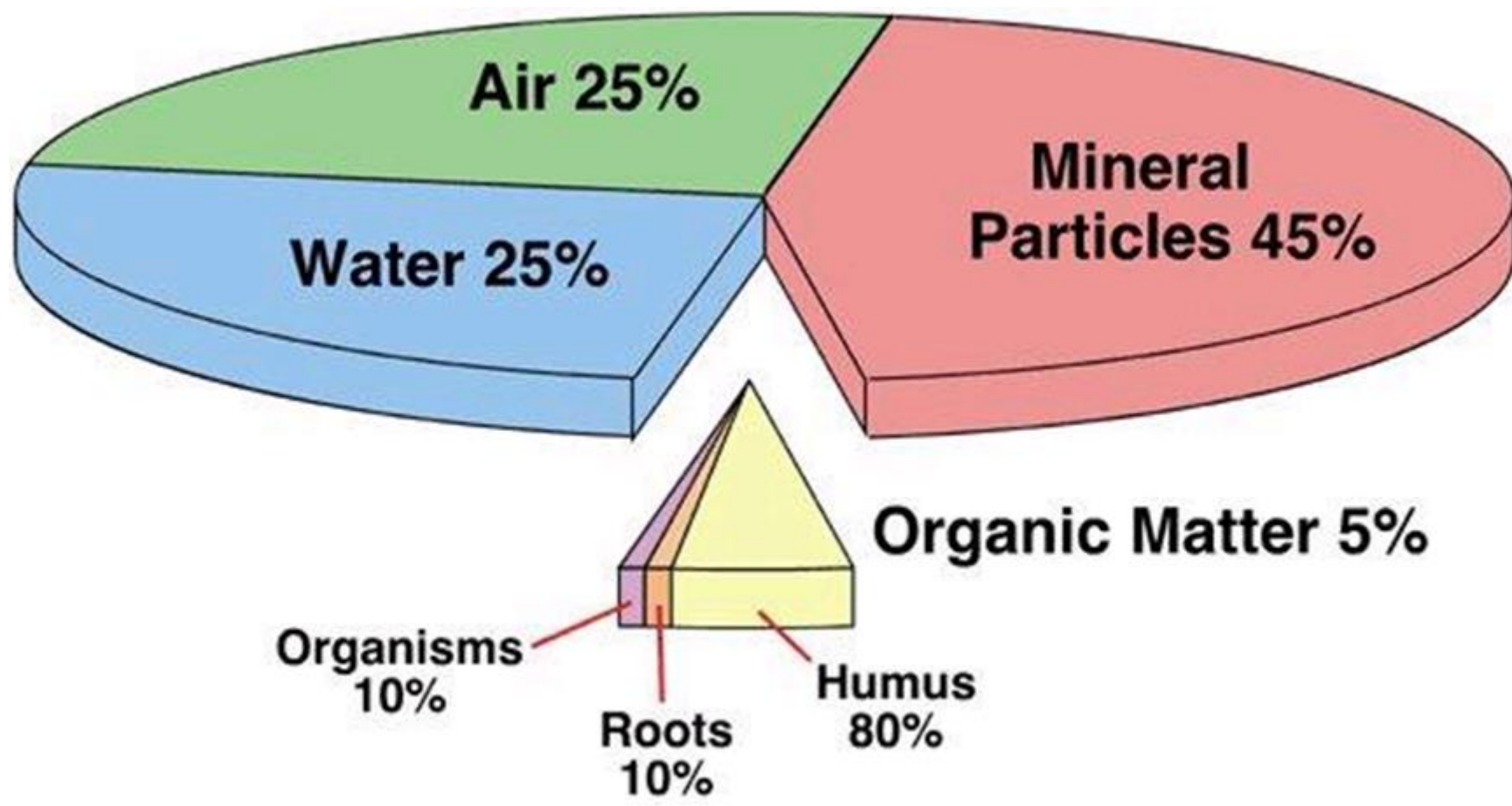
A rural landscape under an overcast sky. In the foreground, there are rows of young, green corn plants. To the left, there is a field of dry, yellowed hay. In the middle ground, a large, dark-roofed barn is visible. The background consists of a rolling hill covered in dense green trees. A utility pole and power lines are visible on the right side. The text "Weather: Moisture" is overlaid in the center of the image in a large, white, sans-serif font.



Water vapor is 97% of all the
greenhouse gases in the
atmosphere!

CO₂, along with Methane, NO₂, Ozone and a few other gases equal about 0.04%



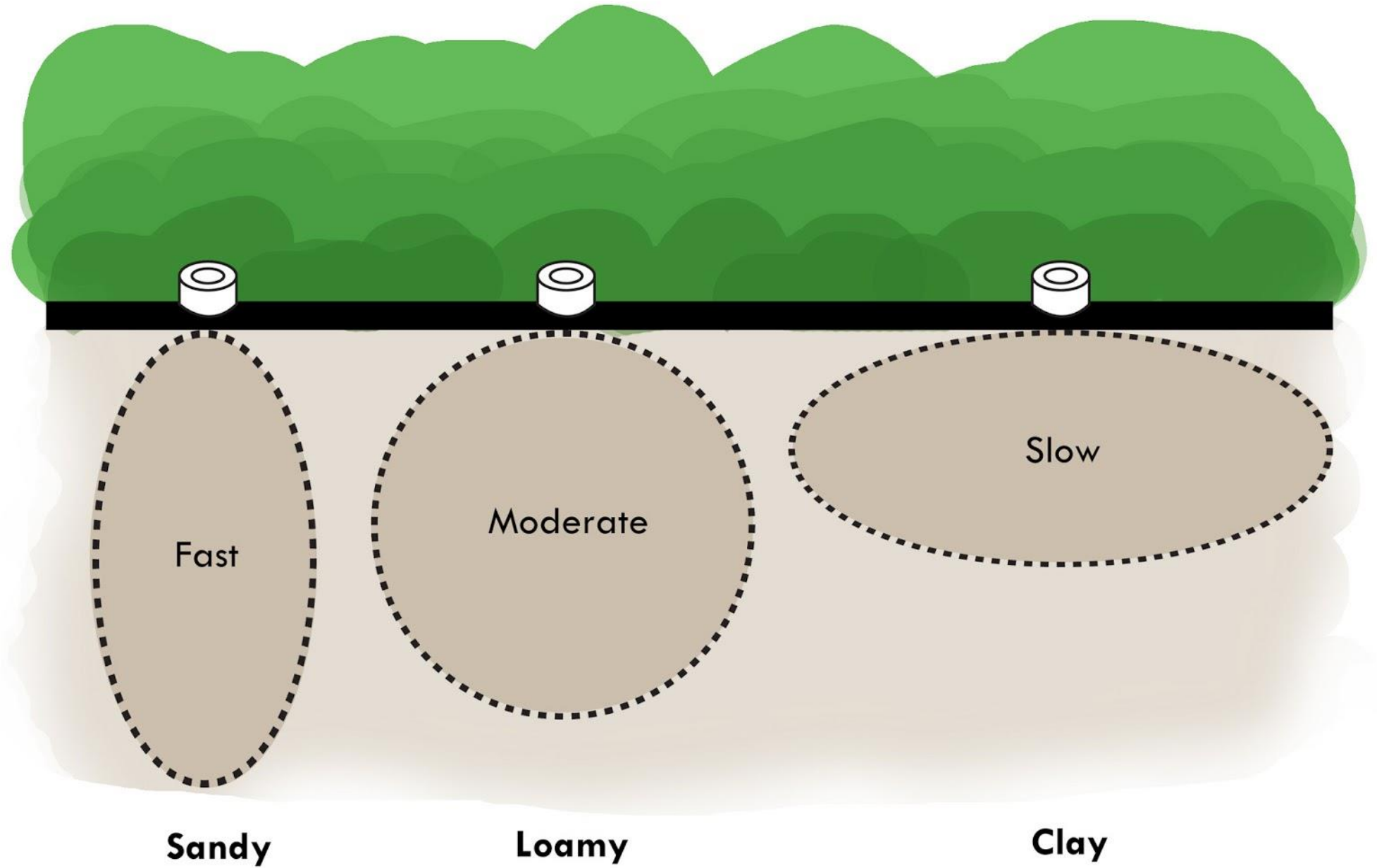


Water Dynamics

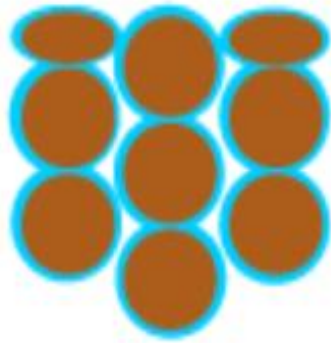
A rural landscape featuring a large, dark wooden barn with a grey roof in the middle ground. To the left, there is a dense line of green trees. In the foreground, a field of tall, green corn plants is visible. To the right, a large, circular, light-colored area, possibly a pond or a large pile of material, is partially visible. The background shows a rolling hill covered in green trees under a bright, overcast sky.

- Infiltration
- Storage/Availability
- Capillarity
- Evapotranspiration

Water Drainage by Soil Type



Hygroscopic water



Remaining water adheres to soil particles and is unavailable to plants

Wilting point →

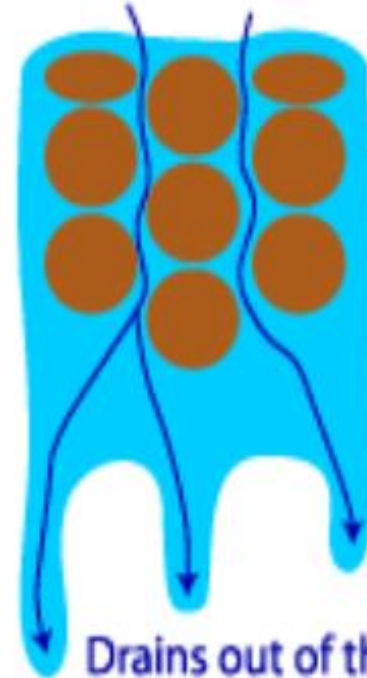
Capillary water



Water held in micropores

Available water-plant roots can absorb this

Gravitational water



Drains out of the root zone

← Field capacity

Available water for plant growth

Water Quality

A rural landscape featuring a field of green crops in the foreground, a dirt road, a wooden barn, and a forested hill in the background. The scene is captured in a wide-angle shot, showing a mix of natural and man-made elements.

- TDS/Mineral load
- Soluble salts (EC)
- Bi-carbonates
- SAR
- Contaminants/Pollutants
- pHc

Weather: Wind



Weather: Atmospheric Pressure

A rural landscape featuring a field of green corn in the foreground, a hay field to the left, a barn in the middle ground, and a hill in the background under an overcast sky.

Contaminants

A rural landscape featuring a large field of green corn plants in the foreground. To the left, there is a path or area covered in dry, light-colored straw or hay. In the middle ground, a dark wooden barn with a grey roof stands on a grassy area. To the right of the barn, a large, dark tree is visible. The background consists of a rolling hill covered in dense green trees under a bright, overcast sky. The word "Contaminants" is written in a large, white, sans-serif font across the center of the image.

Vectors





Questions?