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**Carbon dioxide (CO₂) entry:** When a plant is transpiring, its stomata are open, allowing gas exchange between the atmosphere and the leaf. Open stomata allow water vapor to leave the leaf but also allow CO₂ to enter. CO₂ is needed for photosynthesis to operate.

CO₂ enters, while water & Oxygen exit, through a leaf’s stomata.

When CO₂ gas from the soil air dissolves in the soil solution, a small amount of the dissolved CO₂ forms Carbonic acid (H₂CO₃); this is a weak acid & is part of the soil pH equilibrium.

There is an equilibrium between the CO₂ dissolved in the soil solution and CO₂ gas that is part of the soil air.

Aggregates and sand grains (i.e., of various sizes), create a large distribution of pore sizes through which water flows. The larger pores keep the soil aerated.

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Which tillage system has more microbial activity where the crop benefits from the CO₂?

When the soil air contains only 0.35% CO₂, this gas is about 10 times as concentrated as it is in the atmosphere.

Gases like CO₂ are more soluble in cooler solutions than they are in warmer solutions.

pKa tells us how acidic a given hydrogen atom in a molecule is.