

① R_{abs} : Absorbed radiation

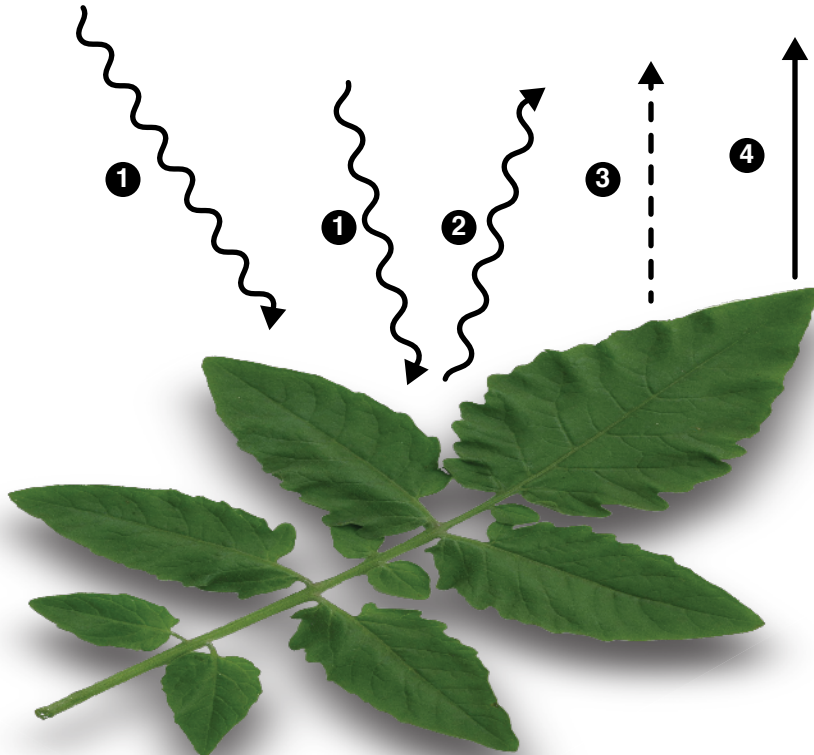
Leaf temperature increases by absorbing solar, direct and reflected, and infrared radiation (Eqns 2–3).

More sunlight, higher air temperature, and greater absorption increase energy input.

② S_r : Thermal infrared radiation losses

Leaves lose energy by emitting thermal infrared radiation into the surrounding environment (Eqn 4).

Radiative losses depend on air temperature and emissivity.



③ H : Sensible heat flux

Leaves lose (gain) heat through convection when leaf temperature is greater (less) than air temperature (Eqns 4–15).

Sensible heat flux is proportional to the temperature difference between leaf and air; more heat is lost as leaf temperature increases about air temperature.

④ L : Latent heat flux

Water vaporization requires energy. Evaporation from leaf interior lowers leaf temperature; condensation (dew) increases it (Eqns 16–27).

Latent heat flux is proportional to vapor pressure deficit from air to leaf and the leaf conductance to water vapor.