

METHOD AND APPARATUS FOR PLANT DROUGHT STRESS MANAGEMENT

Physiologically based drought stress evaluation is desirable for sustainable biomass production and irrigation, but effective measurements and technologies are lacking. The present invention provides a method and apparatus to measure water deficiency (drought) by the primary physiological function of water, electron donation in photosystem II (PSII). Delayed fluorescence (DF) is measured as an output variable of the PSII phototransduction system and its dependence on the availability of electron donors (water) is modeled and analyzed. This yields an effective and immediate method to define and measure water availability or, conversely, the water deficiency (drought stress) according to the PSII photoelectron generation efficiency. Water deficiency is determined by the deficit from the maximum photoelectron generation efficiency available.

POTENTIAL AREAS OF APPLICATIONS:

- Effective tool for irrigation optimization
- Plant drought research

INVENTOR(S): Jinglu Tan and Ya Guo

CONTACT INFO: Wayne McDaniel, Ph.D.; McDanielWC@missouri.edu ; 573-884-3302