

Boyer, J.S.: Measuring the Water Status of Plants and Soils. - Academic Press, San Diego - New York - Boston - London - Sydney - Tokyo - Toronto 1995. 178 pp. ISBN 0-12-122260-8.

This book is a laboratory manual and serves as a companion to the textbook "Water Relations of Plants and Soils" written by Kramer and Boyer (1995). As much of our knowledge of plant water relations comes from thoughtful and careful measurements of the water status of the plant and its surroundings the survey of methods is the important addendum to the theory. This book is not detailed review of the literature and does not deal with all the method but considers three the most used and useful measurement techniques. The manual begins with a brief review of relevant thermodynamics. In the second chapter the pressure chambers, the most widely used field instruments for measuring plant water status, are described. The third chapter is devoted to laboratory measurements of water potential and its components using three basic types of thermocouple psychrometers: isopiestic psychrometers, Peltier psychrometers and dew point hygrometers. The fourth chapter deals with the pressure probe the only instrument that can measure the water status of single cells. Each of these three chapters contains theoretical background of the method, detailed description of equipment, measurement procedures including necessary calculations and handling with plant material, evaluation of advantages and drawbacks of the method, safety rules and list of manufacturers. The last chapter provides some examples of experiments. The book will be useful for students and anyone starting with measurement of plant water status.

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