

Unit Measures Photosynthetic Rate and Stomatal Resistance

The LI-6000 integrates a porometer, CO₂ analyzer, and data logger into a small, portable unit that allows one person to make simultaneous measurements of photosynthetic rate and stomatal resistance in the field, according to LI-COR, Inc. The LI-6000 calculates stomatal resistance and apparent photosynthetic rate according to the rate of change of water vapor and CO₂ concentration in a closed leaf chamber. The decrease in CO₂ concentration is measured with a nondispersive infrared CO₂ analyzer, a low-power, single optical path analyzer with 0–1,000 ppm absolute measurement. The instrument also measures relative humidity, time, and leaf and chamber temperatures, and a sensor is included for measuring photosynthetically active radiation.

The system console is a dedicated microcomputer with 32K bytes memory for data storage, which permits easy control and monitoring of all operations and calculations. The unit communicates with other computers, terminals, or printers for data transfer.

Contact: LI-COR, Inc., P.O. Box 4425, Lincoln, NE 68504, (402)467-3576.

Automated Microplate Washer Offers Choice of Cycles

The Bio-Tek Automated Microplate Washer Model EL402 accommodates all rigid and flexible 96-well microplates and operates via gravity feed or pressurized systems. The user can adjust the fill volume and the soak period and has a choice of three, four, or five wash/aspirate

Simple Filter/Storage System Is Sterile and Disposable

A sterile plastic 200-ml filter/storage system designed for vacuum filtration of tissue culture media and components, biological fluids, and other solutions is



simple, efficient, and disposable, according to Corning Glass Works. The filter unit contains an integrally sealed cellulose acetate membrane, 47 mm in diameter, that minimizes protein binding and is

detergent-free. The membrane support grid is designed to maximize flow rates and reduce foaming and protein denaturation. The receiver bottle unscrews from the filter unit for quick, direct access to contents for pipetting and pouring. A sterile plug seal cap for each filter ensures leak-free storage. Filter units are available in 0.22- and 0.45- μ m pore sizes.

Contact: Allen C. Miller, Corning Glass Works, Corning, NY 14831, (607)974-8145.

Soil Enhancer Combines Microbes and Catalyst

Bio-Till, a biological soil enhancer from Nu-Ag, has two components: a microbial part containing over 100 bacteria and other organisms and a catalyst that stimulates important biochemical reactions. The microbes in Bio-Till all occur naturally in healthy soil but are drastically reduced in soil treated by heavy use of chemicals and deep tilling methods. Bio-Till restores the microbes that break down chemical residue, compost trash from preceding harvest, loosen the tilth of the soil, and turn decomposed organic matter into available plant food. The catalyst component brings the pH and nutrient levels into normal range and aids the process of turning inorganic minerals into organic minerals.

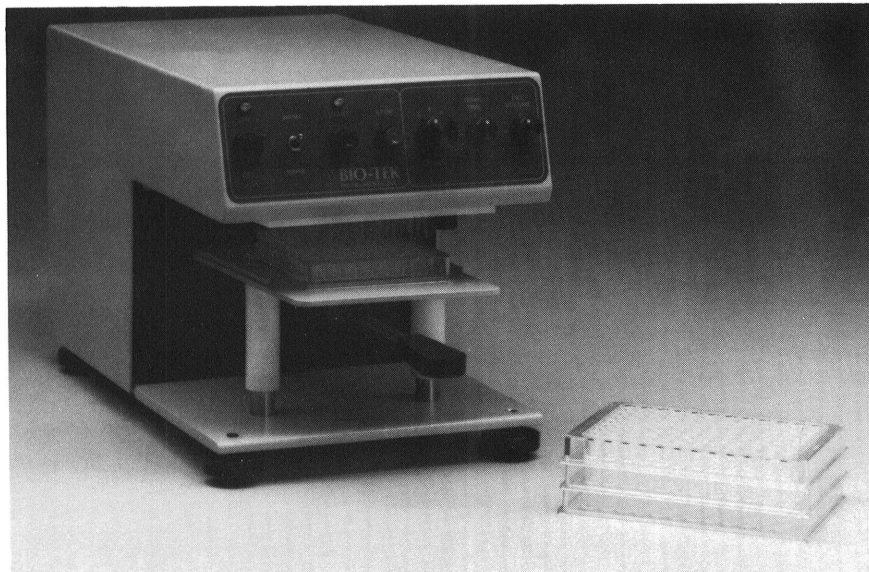
Contact: Nu-Ag Division, Pro-Ag, Inc., 2072 East Center Circle, Minneapolis, MN 55441, (800)328-3333.

Plastic Bags for Storing Baled Hay in the Field

The Hay Bag, developed by Rex Plastics Inc., is a plastic bag for field storage of hay. The hay is cut with a round baler and allowed to wilt to a 45–70% moisture content. The bales are lifted with a loader, and a Hay Bag is slipped on and tied. The bagged hay is “stored” in the field. Owing to a special ultraviolet inhibitor, high-quality silage ferments in a 3-week period. Bales must be bagged the same day as cut and not allowed to sit overnight. Also, bags must be tightly sealed.

The Hay Bag comes in two sizes (50 and 60 in.) and two colors (opaque black and white) and is packed on rolls, 10 bags per roll, in a corrugated carton.

Contact: Jerry Jones, 1724 East 7th Street, Charlotte, NC 28204, (704)376-0933.



Photometer Reads Samples Through Microplate Wells

The Bio-Tek Automated Microplate Reader Model EL310 is a microprocessor-controlled precision photometer that automatically reads samples directly through the wells of 96-well microplates. Selected modes, accessed via the alpha numeric touch panel, afford the user total flexibility in data entry, wavelength selection, single or multiple blanking, reading sequence, and data reduction.

Contact: Bio-Tek Instruments, Inc., One Mill Street, Burlington, VT 05401, (800)451-5172.

Cell Culture Vessel Allows Interchange of Surfaces

The Bionique Chamber/Dish for cell culture allows growth surfaces to be interchanged and provides easy access to cells or tissue, according to Corning Glass Works. Cells growing on gas-permeable membranes or on glass coverslips may be removed for microscopic observation. The reusable, autoclavable vessel features a modular design with a metal base plate and a 3 × 2½ in. Teflon core. A standard 35-mm petri dish covers the vessel, sitting in a special groove to prevent slippage and contamination.

The Bionique Chamber/Dish is suitable for monolayer cell culture, photomicroscopy, explant culture, microcinematography, and electron microscopy. For electron microscopy,

the vessel has special membranes on which cells may be grown, fixed, dehydrated, and embedded in situ; the membrane may then be peeled off, leaving the cells for observation.

Contact: Allen C. Miller, Corning Glass Works, Corning, NY 14831, (607)974-8145.

Protectant, Systemic Actions Combined in Seed Treatment

Enhance combines Captan and Vitavax to control a wide range of seed and seedling diseases and promote crop stand, plant vigor, and yield of small grains—wheat, barley, and oats. As a surface protectant, Enhance helps prevent disease attacks on the seed in the soil before germination. As a systemic, the fungicide penetrates the seed coat at germination and translocates in the young seedling to give protection during early emergence and to stimulate growth during early stages. The combined action results in excellent or good control of loose smut, covered smut, common bunt, scab, Pythium rots, Helminthosporium blights, barley stripe, and other barley diseases, according to Kalo Agricultural Chemicals.

Enhance is packaged in waterproof, vaporproof bags, each holding enough treatment for 10 bu of seed, 12 bags to a case. The product is premixed and ready to use when poured from the bag.

Contact: Kalo Agricultural Chemicals, Inc., 4550 West 109th Street, Overland Park, KS 66211, (800)255-5196.

Five New pH Meters for Use in the Laboratory or Field

A new line of five pH meters with a unique delta shape and unified display has been introduced by Corning Science Products. The line ranges from Model 120, a lightweight battery-operated meter for use in the laboratory or field, to Model 155, a pH/ion meter that features known and sample addition/subtraction modes, step-by-step alpha numeric prompting in five languages, automatic

buffer recognition, three-decimal accuracy, a digital clock and timer, and activity and memory functions capable of accommodating a five-electrode testing system. Cases are made of molded structural foam with keypads of polyvinyl chloride coated to withstand spills.

Contact: Allen C. Miller, Corning Glass Works, Corning, NY 14831, (607)974-8145.

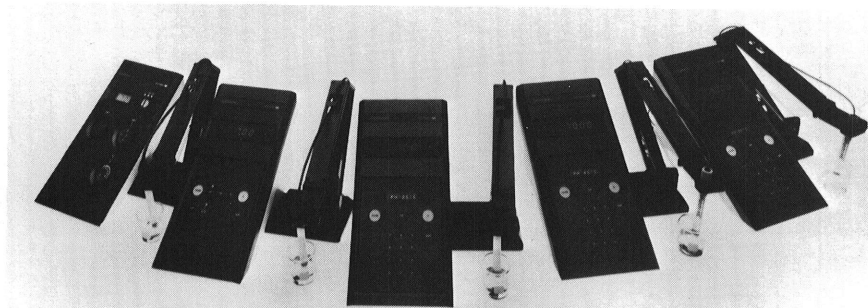
Stainless-Steel Sprayer for Professional User

The TEK stainless-steel sprayer is available in 1- or 2-gal sizes and has several advantages, according to the H. D. Hudson Manufacturing Company. The tank has an opening 3.7 in. in diameter with an inner-seal gasket, an accessory fitting for optional pressure gauge or relief valve, electric-weld seams, and a flanged base. Capacity markings in



gallons and liters are embossed in the inner tank wall. The valve automatically and instantly releases pressure as the tank is opened, and the spring-activated check valve seals mechanically.

Contact: John Hepburn, H. D. Hudson Manufacturing Company, 500 North Michigan Avenue, Chicago, IL 60611, (313)644-2830.



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NEW FROM APS BOOKS!

E. C. Stakman, Statesman of Science

By C. M. Christensen
Regents' Professor Emeritus
University of Minnesota

A Personal Portrayal

At age seven, E. C. Stakman began herding cattle in his hometown of Brownton, Minnesota. As the cattle grazed, he became acquainted with the prairie flora and fauna. As a boy he also whittled books out of wood, printing the name of the wood on each, to make what he called his "library of woods."

Throughout the book, intimate biographical sketches like these provide insight into the nature of one of the most brilliant and respected scientists and educators of his age. Other detailed stories portraying his political savvy and competitive nature in sports offer the reader a multidimensional perspective on Stakman.

An Authoritative Chronicle

Much of the book is in Stakman's own words—taken from an oral history that he recorded during his years with the Rockefeller Foundation. C. M. Christensen, a former student, colleague, and long-time friend of Stakman's, pieces together many Stakman quotes and stories in a manner that could only be accomplished by someone who knew him well.

In regard to the results of Stakman's Ph.D. thesis on stem rust fungus, Christensen writes, "That they [the thesis results] differed from some of those of the established authorities did not bother him in the least; more likely, he relished it. He was justifiably confident of his work and his results, and he enjoyed setting people straight."

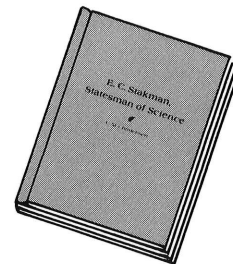
Stakman's other scientific accomplishments are covered in detail using his oral history as a guide. In addition, his unique skills as an educator are given special attention. And along the way, Christensen bridges any informational gaps flawlessly, interjecting his personal perceptions of Stakman's life wherever they are appropriate.

This Book Is for Everyone

It will provide hours of enjoyable and fascinating reading to scientists and lay people alike. And it is a book that no student embarking on a career of plant pathology, or any science for that matter, should be without.

“ Not only is this book a fascinating history of Dr. Stakman's tremendous accomplishments as a scientist, but it is a warm and personal study of a wonderful human being. C. M. Christensen tells the story in a compelling and personal manner, with many examples of Stakman's warmth and humor and many anecdotes in Stakman's own words. It is the most enjoyable recreational reading I have experienced in quite a long time. ”

Thor Kommedahl
Professor of Plant Pathology
University of Minnesota



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