



NEWSLETTER

American Society of Plant Physiologists

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THE RESULTS ARE IN: BUCHANAN TO BE PRESIDENT-ELECT; VIERLING TO SERVE ON EXECUTIVE COMMITTEE AS ELECTED MEMBER

ASPP's 1994 election of officers is complete, and the results will be announced at the annual meeting in Portland, Oregon. Bob B. Buchanan, professor of plant biology at the Berkeley campus of the University of California, has been chosen president-elect to serve as president in 1995-1996. Also joining the executive committee for a three-year term as elected member will be Elizabeth Vierling, associate professor of biochemistry and molecular and cellular biology at the University of Arizona.

Buchanan and Vierling will assume their duties on October 1, 1994. Buchanan will succeed James N. Siedow as president-elect when Siedow assumes the presidency of the Society. Vierling will succeed Frank Greene, who had served one year on the executive committee to finish the term of Brian Larkins when Larkins became editor-in-chief of *THE PLANT CELL*.

Dr. Buchanan teaches biochemistry and plant biochemistry at UC-Berkeley. He graduated cum laude from Emory & Henry College in 1958 and earned his Ph.D. at Duke University in 1962. He then served as a postdoctoral fellow in the laboratory of J. C. Rabinowitz at Berkeley, where he conducted classical experiments on the chemistry of ferredoxin.

Work on ferredoxin led to an invitation to join the faculty at Berkeley, where (in collaboration with D. I. Arnon and associates) Buchanan discovered a family of widespread enzymes that catalyze ferredoxin-dependent carbon dioxide fixation reactions. This work resulted in the dis-



Bob B. Buchanan, newly elected president-elect of ASPP

covery of the reductive carboxylic acid cycle in photosynthetic bacteria, which is distinct from the reductive pentose phosphate cycle that had been previously regarded as the sole CO₂ assimilation pathway of all photosynthetic organisms.

Buchanan is also recognized for his discovery of a light-dependent mechanism for the regulation of enzymes of oxygenic photosynthesis and associated processes

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Deadline for the
September/October issue
of the *ASPP Newsletter*
is August 15, 1994.

EDUCATION SURVEY FORM INSIDE—

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THE PLANT CELL, October 1993

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(the ferredoxin/thioredoxin system). In related research, he and his group independently and in collaboration with H.-W. Heldt and M. Stitt established the function of fructose-2,6-bisphosphate in sucrose synthesis and breakdown. More recently, Buchanan and his group have discovered that the NADP/thioredoxin system acts early in cereal germination to activate enzymes and mobilize storage proteins. An extension of this work (in collaboration with K. Kobrehel in France) has yielded technology that holds promise for benefitting human health through the production of new and improved foods.

Bob Buchanan was department chair at Berkeley for eight years, and he has chaired key campus-wide committees. Service to the plant physiology community includes organizing scientific meetings, serving on grant review panels for all the pertinent U.S. federal funding agencies, and serving on the editorial boards of *Plant Physiology* since 1982 and *Archives of Biochemistry & Biophysics* since 1984. Among Buchanan's honors are a Guggenheim Foundation Fellowship, the Special Creativity Award of the National Science Foundation, and the Bessenyei Medal of the Hungarian Ministry of Education.

Dr. Elizabeth Vierling has just returned to the Tucson campus of the University of Arizona from spending a year in the laboratory of Gerald Fink at the Whitehead Institute in Cambridge, Massachusetts. A graduate of the University of Michigan (1975), she earned her master's (1979) and Ph.D. (1982) degrees from the University of Chicago, and then spent three years as a postdoctoral research associate in the laboratory of J. L. Key at the University of Georgia. Following her postdoctoral stint, she joined the faculty of the University of Arizona, where today she is on the faculty of the Department of Biochemistry with a joint appointment in the Department of Molecular and Cellular Biology.

Vierling's research interests center on the role of heat stress proteins in stress protection and in normal growth and development, the function of molecular chaperones, and chloroplast protein assembly. She holds an American Cancer Society faculty research award that runs until 1997. Her

other professional activities include serving as guest editor for *Annual Review of Plant Physiology and Plant Molecular Biology*, serving on the publications committee of the American Society for Cell Biology, reviewing grants for all pertinent U.S. federal agencies plus the Canadian Research Council and BARD, and serving on the editorial board of *Plant Physiology* since 1983.



CORPORATE SPONSORS SUPPORT ANNUAL MEETING LUNCHEON

Three companies have contributed funds to support the luncheon and address sponsored by the Committee on the Status of Women in Plant Physiology at the annual meeting in Portland, Oregon. Monsanto Company, Pioneer Hi-Bred International, Inc., and Hunt Wesson, Inc., each donated funds to make it possible for students to attend the luncheon at a reduced cost. ASPP thanks these companies for their support of this function, which has become a tradition at the annual meeting.

ATTENTION: AUTHORS, REVIEWERS, EDITORS

The manuscript management office at ASPP headquarters now is accessible by e-mail. Any type of communication for either *Plant Physiology* or *THE PLANT CELL* that you have been faxing or mailing to Annette Kessler, Sylvia Braxton, or Kim Davis can now be sent to

kessler@access.digex.net

We encourage everyone to use e-mail whenever possible.

The *ASPP NEWSLETTER* is distributed to all ASPP members and is published six times annually, in odd-numbered months. It is edited and prepared by ASPP staff from material provided by ASPP members and other interested parties. Copy deadline is about the fifteenth day of the preceding even-numbered month (e.g., December 15 for January/February publication). Submit copy by e-mail whenever possible; submit all other copy by mail, **not by fax**. Contact: Jody Carlson, Editor, *ASPP NEWSLETTER*, 15301 Monona Drive, Rockville, MD 20855-2768 USA; e-mail: jcarlson@access.digex.net; telephone 301-251-0560, ext. 17.

TEACHING CORNER

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Teaching Award

It's not too soon to start thinking about nominees for the 1995 ASPP Excellence in Teaching Award. Our Society is fortunate to have many outstanding educators and the teaching award provides the opportunity to recognize and celebrate their contributions to science education. Excellence in teaching has many dimensions, and each nominee will have unique strengths ranging from dynamic and inspiring classroom lectures to innovative outreach programs. Nominations for the Excellence in Teaching Award can be sent to ASPP headquarters.

ASPP Fast Plants Workshops Followup

ASPP sponsored two Fast Plants workshops for members in 1990 and 1992. The response was terrific and many participants have gone on to incorporate Fast Plants into their college level teaching. Paul Williams is beginning to explore ways more formally to assemble information on Fast Plants in post-secondary curricula and hopes that activities developed by former workshop participants will be at the core of this effort. If you have found meaningful ways to incorporate Fast Plants into your college-level teaching (whether or not you participated in one of the workshops), please drop Paul a brief note describing your efforts. Small projects and ideas as well as more major curricular revisions are of interest. Information can be sent to Paul Williams, Plant Pathology Department, University of Wisconsin, 1630 Linden Dr., Madison WI 53706-1520, e-mail wilpaul@mac.wisc.edu.

Two New Texts by ASPP Members!

Donald Fosket's *Plant Growth and Development—A Molecular Approach* is now available from Academic Press (ISBN 0-12-262430-0, published in 1994). This book has its roots in his junior and senior undergraduate level course on the molecular analysis of plant growth and development. Unlike other plant development texts, there is a stronger genetic and molecular biology perspec-

tive, and it goes far more into depth on plant development than a general developmental biology text would.

After an introductory chapter on plant anatomy and morphology with a brief description of the field of development, the text builds from the plant genome, to cells, to embryogenesis and germination, and to apical meristems. It concludes with a chapter on biotic factors (e.g. *Rhizobium* and *Agrobacterium*) that affect plant development. This text has a strong mechanistic emphasis.

Maarten Chrispeels and David Sadava also have written a new text, *Plants, Genes, and Agriculture* (Jones & Bartlett, 1994, ISBN 0-86720-871-6). This text relates the fundamentals of plant biology to biotechnology and crop production. *Plants, Genes and Agriculture* is written at a level appropriate for an introductory level major or non-major course. What makes this book unique is the articulate way the authors weave together substantive scientific explanations with a balanced and insightful analysis of meeting humanity's food needs. Examples of the integrative nature of the text include a section on whether or not there is room for plant genetic engineering in sustainable agriculture and explanations of why sensitivity to social environments as well as physical and biological environments in the Third World is essential for agricultural sustainability. Explanations of gene transfer technology, photosynthesis, and human population growth are all equally understandable and engaging. The reader is exposed to the basics of plant biology in a meaningful and challenging conceptual framework.

K-12 Resources

Next time you're asked for ideas for ideas for a science fair project, consider David Hershey's *Plant Biology Science Projects* (ISBN 0-471-04983-2, John Wiley and Sons, available January 6, 1995, \$12.95 in paperback). It will have step-by-step directions for about 35 projects along with many dozens of suggested projects. Most could be classified as plant physiology. Written by a plant scientist, it should be devoid of common misconceptions and errors in similar books.

Changes Planned for Job Postings in ASPP Newsletter

Beginning with ads placed in the January 1995 issue of the ASPP Newsletter, several changes will occur in the "ASPP Job Placement Service" section. All ads will be limited in length, and some ads will be charged a fee. This course of action has been under consideration for some time and recently was approved by both the publications committee and the executive committee.

The changes and charges are as follows:

- **POSTDOCTORAL POSITIONS:**
Postings for postdoctoral positions at nonprofit institutions will be free but will be limited to 100 words. Such ads will run two times: the first time the entire ad will be presented; the second time, the location and a contact name and address will be listed, and the reader will be referred to the original posting for details.
- **TENURE-TRACK POSITIONS:**
Postings for all tenure-track positions at academic institutions (or their equivalent at government installations) will be limited to 200 words and will be charged at the rate of \$150 to run one time or \$250 to run two times.
- **PRIVATE COMPANY POSITIONS:**
Postings for all positions at private companies, regardless of rank, will be limited to 200 words and will be charged at the rate of \$150 to run one time or \$250 to run two times.

You are strongly encouraged to submit ads by e-mail. If you submit a chargeable ad by e-mail, be certain to include a credit card number and expiration date. Chargeable ads that are mailed to ASPP headquarters should include a purchase order; a check; or a credit card number, expiration date, and signature. Faxed ads are never accepted.

A reminder: these changes will take effect for ads placed in the January/February 1995 issue of the ASPP Newsletter. Ads for that issue must be received at ASPP headquarters by December 20. If you have any questions, contact newsletter editor Jody Carlson, telephone 301-251-0560, ext. 17, fax 301-279-2996, or e-mail jcarlson@access.digex.net.

OBITUARIES

John Skok

John Skok, professor emeritus of biological sciences, Northern Illinois University, DeKalb, died on May 11, 1994. Dr. Skok joined ASPP in 1940.

Donald B. Anderson

Donald Benton Anderson died at Chapel Hill, North Carolina, May 22, 1994, at the age of 94, after a short illness. He was president of the American Society of Plant Physiologists in 1948-49 and was well known as coauthor of the Meyer and Anderson textbook of plant physiology and as a teacher and administrator.

Professor Anderson was born in Schoolcraft, Michigan, in 1899. He received his undergraduate and graduate education at the Ohio State University, where he received his Ph.D. in 1925. He spent the year 1923-24 as an instructor in botany at the University of Wisconsin. In 1925 he went to what was then known as North Carolina State College at Raleigh, North Carolina, where he remained until 1958. He spent 1927-28 in Vienna studying plant microchemistry with Professor Molisch on an International Education Board Fellowship, and in 1956-57 was Program Director in Education in the Sciences at the National Science Foundation. He is remembered by many students as an extraordinarily enthusiastic and stimulating teacher who gave a rigorous and challenging course in plant physiology. It must have stimulated scores of students who later made important contributions to

science and agriculture. In his earlier years Anderson published extensively, especially on wall structure of cotton fibers. However, his most important contribution probably was as coauthor with B. S. Meyer of *Plant Physiology*, which first appeared in 1939 and was soon in use all over the world. He received the O. Max Gardner Award in 1951 for his important contributions to the state.

Dr. Anderson's teaching and research were increasingly limited by administrative duties. He became head of his department, then head of the Division of Biological Sciences, and finally dean of the Graduate School. In 1958 he moved to Chapel Hill and became provost of the Consolidated University of North Carolina which supervises all of the state-supported colleges and universities. From 1960 to 1966, he was vice president for academic affairs of the Consolidated University. After retiring from administration he became University Professor and taught courses at Raleigh, Chapel Hill, and Greensboro, including a new course, "The History of Ideas in Biology." He continued to be active after retirement. Among his hobbies was the construction of small, beautifully inlaid wooden boxes.

Few scientists have been successful in so many fields as Dr. Anderson and few plant physiologists have influenced so many students through the written word. Probably none have had greater influence in the classroom than Donald Anderson. We pay our respects to the career of an outstanding scientist, teacher, and administrator.

Paul J. Kramer
James B. Duke Professor of Botany,
Emeritus
Duke University

Arthur Galston, ASPP Past President, Honored at Yale

Arthur W. Galston, professor emeritus at Yale University and past president of ASPP (1962-63), received one of Yale's highest honors when he was awarded one of two 1994 DeVane Medals for distinction in lifetime scholarship and undergraduate teaching. The medal has been awarded annually since 1966 by the Yale chapter of Phi Beta Kappa.

The award was made at Yale's annual Phi Beta Kappa dinner on February 28. Galston was honored for the body of his contributions to scholarship and teaching, in particular for developing and teaching for 15 years a popular undergraduate course entitled Problems in Bioethics.

Humboldt Fellowship Goes to Pakrasi

Himadri Pakrasi, ASPP member and assistant professor of biology at Washington University in St. Louis, is among 80 American researchers selected to receive a research fellowship awarded by the Alexander von Humboldt Foundation. The fellowship provides support to qualified postdoctoral researchers under 40 years of age for the conduct of research in any academic discipline in Germany for periods of up to 24 months.

The Alexander von Humboldt Foundation of Bonn, Germany, a privately chartered foundation founded by the German federal government, promotes international scholarly cooperation through research and supporting activities.

Other awards made by the Foundation include: the Humboldt Research Award for Senior American Scientists, awarded to some 75 Americans each year on the basis of internationally recognized scientific achievement; the Bundeskanzler Scholarship Program that provides the opportunity for a limited number of outstanding young Americans to spend a year in Germany on a research project of their own design.

Qualified individuals are encouraged to apply for these programs. For more information about the Alexander von Humboldt Foundation and its programs, please contact Dr. Bernard Stein, the Alexander von Humboldt Foundation, Suite 903, 1350 Connecticut Avenue, N.W., Washington, DC 20036; telephone 202-296-2990, fax 202-833-8514.

PEOPLE

AUSUBEL ELECTED TO NATIONAL ACADEMY OF SCIENCES

Frederick M. Ausubel, professor of genetics at Massachusetts General Hospital, was elected to the National Academy of Sciences at its meeting in late April. Ausubel is editor-in-chief of *Molecular Plant-Microbe Interactions*, a publication of the American Phytopathological Society. He has published in both ASPP journals, *Plant Physiology* and *THE PLANT CELL*, and he has served as a reviewer for *THE*

PLANT CELL. Ausubel has been a member of ASPP since 1986.

Three other plant science researchers were also elected to the Academy in April: Eugene Nester (University of Washington), Michael Freeling (University of California, Berkeley), and Thomas Taylor (Ohio State University).

Public Affairs

GANTT TESTIFIES IN SUPPORT OF PLANT SCIENCE RESEARCH SPONSORED BY NSF

ASPP past president Elisabeth Gantt, professor of botany at the University of Maryland, testified before the Senate Appropriations Subcommittee on VA, HUD and Independent agencies on May 20 in support of the President's Fiscal Year 1995 budget proposal for the National Science Foundation (NSF) and its funding for research in the plant sciences. Following are her comments:

"We appreciate the opportunity to talk about the valuable research and education opportunities supported by the National Science Foundation (NSF) in the plant sciences. The availability through biotechnology of remarkably effective new tools in plant science research offers exciting new opportunities for previously unreachable advances. The support of the foundation in this area strengthens the United States in a competitive global market in which other nations are very strong players. We strongly urge full funding of the amount proposed by the

President for the FY 95 appropriation for NSF.

"Let me give you some examples of plant research done by colleagues of mine at the University of Maryland who are receiving support from the Foundation. Heven Sze is investigating the transport channels that regulate the entry and exit of nutrients in plants and the distribution of these nutrients within plants. Such transporters play vital roles by allowing plants to respond to changes in the environment. With such fundamental knowledge, we shall be able to reduce threats of crop disasters that might damage a major segment of our economy and undermine the food supply.

"NSF has also funded research by my colleague Steve Wolniak that is leading to a better understanding of the sequence of events that control the division of cells. Knowing where and how the controlling factors operate provides important

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Elisabeth Gantt, ASPP past president (1988-1989), in her laboratory at the University of Maryland. Dr. Gantt testified before Congress in support of NSF funding for plant science research.

Rep. Pastor Adds Funds for DOE Biosciences

ASPP Members Hawes, Larkins Urge Support

Congressman Ed Pastor (D-AZ) succeeded in adding \$5 million to the Fiscal Year 1995 appropriation for the Division of Energy Biosciences in the House Committee on Appropriations and in the full House of Representatives. The increase in the Senate Committee on Appropriations is \$3 million higher than the President's proposal bringing the Senate Committee FY 95 recommendation to \$28.9 million. Differences in the House and Senate versions will be resolved in an upcoming House and Senate conference.

Pastor's interest in support of the Division of Energy Biosciences was encouraged by Martha Hawes, Brian Larkins, and Hans Van Etten in a meeting at the University of Arizona. Hawes arranged the meeting concerning the Division of Energy Biosciences when she learned that Pastor would be on campus for another meeting. Hawes and her colleagues explained the value of basic research supported by the Division of Energy Biosciences. As a result of this meeting, Pastor said he would seek needed funding for the Division of Energy Biosciences and he followed through with his efforts to gain funding. ASPP member Hans Kende of Michigan State University had informed Hawes earlier of Pastor's key committee assignment on the Appropriations Subcommittee on Energy and Water Development.

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knowledge for regulating plant growth and enhancement of plant productivity. Research by my colleague John Watson brings us knowledge of how certain plant genes are "switched on by light." These are key elements of photosynthesis—a process by which plants convert solar energy into chemical energy and without which plant growth and life on earth as we know it would not exist.

"As a teacher involved in teaching hundreds of non-science students, I recognize the value of the science teacher enhancement program funded by NSF in Maryland. This enhancement benefits secondary school science teachers from Howard County, Baltimore County, and Baltimore City and increases the interactions among science teachers and faculty at the University of Maryland. School districts have been cost-sharing a portion of the total cost of this program that ensures improved science teaching and introduction of meaningful research methodology to the classroom.

"These are but a few examples of the key support that NSF provides for science education and research. We recognize that the strong record of support by the Chair and this Subcommittee for the NSF results in the vital knowledge needed to provide for the welfare of present and future generations of Americans."

Dr. Gantt served as president of ASPP in 1988-1989. Subcommittee Chair Barbara Mikulski (D-MD) introduced Dr. Gantt as "a very distinguished scientist" from the University of Maryland. Mikulski's office was aware that Dr. Gantt was honored by the National Academy of Sciences the previous month. Dr. Gantt received the Gilbert Morgan Smith Medal for excellence in published research on marine or freshwater algae.

ASPP Member Developing USDA-Supported Sustainable Agriculture Workshop

Keegstra Serves on Steering Committee

ASPP nominee Kenneth Keegstra has been selected to a four-member steering committee that is planning a workshop in support of sustainable agriculture. The workshop proposal was made by the American Institute of Biological Sciences (AIBS). The U.S. Department of Agriculture is funding the workshop.

The workshop will initiate constructive dialogue on how research can contribute more to the development and implementation of sustainable agriculture. The workshop will help develop the scientific rationale needed to foster the concept of sustainable agriculture as articulated in the 1990 Farm Bill.

The steering committee will help identify workshop participants and the specific workshop agenda. The steering committee has representatives from both the scientific and sustainable agriculture communities. The workshop is expected to have no more than 25 participants representing sustainable agriculture and scientific societies. Representatives of scientific societies will have expertise in: plant and soil sciences, animal sciences, pest and disease sciences, plant stress, rural sociology, and agricultural economics.

A USDA representative will be asked to provide the group with an overview of current agency activities in sustainable agriculture. The workshop will be held this summer in Washington, DC. The first conference call of the steering committee was scheduled for July 5.

The workshop will focus on:

- the role of "component" applied research, such as the development of biological control methods, that can be integrated into an overall sustainable agriculture system;
 - the criteria that would best describe or indicate the relevance of research to sustainable agriculture;
 - the programmatic and infrastructure impediments to the development of high quality research programs addressing new farming systems and other integrated aspects of sustainable agriculture; and
 - how to develop a research agenda that maximizes the capabilities of scientists while addressing the numerous aspects of the Farm Bill definition of sustainable agriculture.
- Cliff Gabriel, AIBS executive director, noted that the ad hoc plant and soil sciences forum, an informal alliance of scientific societies with interests in plant and soil sciences, recommended that AIBS organize a workshop to further explore the role of research in developing and enhancing sustainable agriculture. ASPP coordinated the forum meeting that resulted in that recommendation.
- Keegstra has also been the ASPP representative on a panel advising USDA on revisions of the protocol used by the department to evaluate how research may contribute to sustainable agriculture. ASPP was also recently given the opportunity by USDA to comment on the draft revision of the protocol. The controversial protocol had originally recommended giving a zero rating to fundamental research, thereby making fundamental research less consistent with a major priority of the 1990 Farm Bill.

BROAD REDUCTIONS FOR USDA IN FY 95 BUDGET

Faced with less available funds as Congress continues to reduce the federal budget deficit, appropriations committees in the House and Senate called for significant cuts in many agriculture programs, with some facing elimination.

House Appropriations Subcommittee on Agriculture chair Richard Durbin (D-IL) noted that the allocation for Fiscal Year

1995 (FY 95) for programs under his jurisdiction was \$1.33 billion less than for FY 94. With the huge loss of available funds, the subcommittee funded more than 70 of nearly 90 programs below last year's level. The reductions were also approved by the full House Appropriations Committee and full House of Representatives.

For example, the subcommittee cut a program that funds watershed improvement projects from \$267 million in FY 94 to \$65 million in FY 95 and eliminated a water bank and emergency conservation program.

The National Research Initiative Competitive Grants Program (NRICGP) re-

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ceived a more moderate reduction of two percent. The NRICGP was reduced less than \$2.3 million to \$103.1 million for FY 95. A total of \$37 million will go to plant systems research. (The Senate Appropriations Subcommittee on Agriculture subsequently on June 22 passed the same funding levels for the NRICGP as the House.) Less funds for special grants, which were down \$23.5 million from FY 94, accounted for much of the reductions within the Cooperative State Research Service.

The House Appropriations Committee's bill provided \$693.9 million for the Agricultural Research Service (ARS), a reduction of nearly \$1 million from FY 94.

The introductory portion of the committee report explained that the committee felt, "that many of these reductions may be short sighted and in the long run may not be cost effective. The reductions in conservation programs serve as an example, since they involve the prevention of soil erosion and the control of flood waters. Likewise, reductions in agricultural research or prevention and control of animal and plant diseases can prove costly in the future. Reduction in housing and feeding programs deprive many of our citizens of needed benefits. Nevertheless, to comply with the budget ceiling...reductions below fiscal year 1994 have been made."

A number of ASPP members who are constituents of the members of the Appropriations committees contacted their members of Congress to support funding for the NRICGP in advance of the committee votes. For example, ASPP member Marian Smith of Chairman Durbin's district sent him a letter supporting NRICGP and also spoke directly with Durbin before the vote.

In another example, ASPP past president Mary Helen Goldsmith also contacted her representative, Rosa DeLauro (D-CT), who also sits on the House Appropriations Subcommittee on Agriculture. A computer software program used by ASPP matches ASPP members with their members of Congress through checking zip codes in addresses. More than 120 ASPP members in districts of the fourteen House subcommittee members were contacted on the upcoming vote by ASPP staff.

NSF Budget Up 3 Percent for 1995

The House Appropriations Subcommittee on VA, HUD and Independent Agencies approved an appropriation of \$3.1 billion for Fiscal Year 1995 (FY 95) for the National Science Foundation. This represents an increase of three percent over last year's budget.

For Research and Related Activities, the subcommittee recommended a total of \$2.217 billion, which is an increase of \$53 million or 2.5 percent. The President's re-

quest for this account had been \$131 million higher. Specific reductions from the President's request included \$33 million less for global change research, \$29 million less for high performance computing, \$2 million less for the critical technologies institute, and \$1.5 million less for civil infrastructure systems.

For Education and Human Resources, the subcommittee approved the budget request of \$586 million, an increase of three percent over the 1994 budget.

BIOTECHNOLOGY KEY TO U.S. ROLE AS WORLD'S BREADBASKET

To remain the world's breadbasket, the United States must embrace new technologies such as biotechnology, which will enable farmers to use natural resources such as soil and water more efficiently, said Rep. Bob Smith (R-OR).

In a recent article that he wrote for the Capitol Hill newspaper, *Roll Call*, Smith said these new technologies would allow farmers to use less chemicals to produce more reliable yields while keeping down costs, increasing quality, and opening new markets.

"Biotechnology can help increase reliability, cost efficiency, crop quality and crop diversity. Biotechnology has already produced plants that resist viral disease and microbes that protect crops from frost damage and insect pests," Smith said.

Smith noted that American farming is capital intensive, often causing farmers to incur heavy debts to pay for seed, equipment, and supplies, not to mention land costs. However, with biotechnology, Smith said scientists are developing new crops, new varieties of old crops and agricultural products that will help expand markets, improve prices, and reduce a farmer's cost of production.

He pointed out that traditional agriculture uses millions of pounds of herbicides, insecticides, and fertilizers to foster and protect food and fiber crops, all of which add to production costs.

Biotechnology can be used to modify and strengthen a plant's natural defense systems by developing natural biopesticides and by improving other pest and disease resistance, Smith added.

Smith noted that biotechnology is being used to develop crops that are tastier, more appealing, and more nutritious. He

said biotechnology may yield entirely new crops that will open new markets to farmers, such as growing crops that produce high-value protein for use in pharmaceutical products.

"In developing nations, crop yield is still an important goal. Experts warn that the present abundance of food may be temporary. Southern Asia and Africa are particularly at risk. Modern biotechnology applied to the production of food and agriculture products will enable the planet to sustain its rapidly increasing population and keep nature in balance," Smith said.

Smith's staff told ASPP staff that Smith's district includes a large segment involved in agriculture which contributes to his interest in biotechnology. Smith is the ranking minority member on the House Agriculture Subcommittee on Department Operations and Nutrition. His district includes Ashland, Hood River, Ontario, and Pendleton, which are also communities of ASPP members. A member of Congress for six terms, Smith is retiring at the end of this term.



Rep. Bob Smith (R-OR) supports biotechnology.

Nine ASPP Members Included among McKnight Planning Grant Awardees

Final Winners in \$12 Million Program To Be Announced in January 1995

In May the McKnight Foundation awarded planning grants to 18 international research partnerships seeking to be the first recipients of grants in a new, six-year, \$12 million international collaborative crop research program. Eight ASPP members are on the teams thus far selected. These collaborators will use their planning grants to develop detailed research plans and to prepare proposals for research that is strategically linked to issues of food crop production in less developed countries of Asia, Africa, and Latin America.

From among the 18 proposals, the McKnight Foundation will ultimately select up to eight projects for major research and training grants. The grants will range between \$100,000 and \$300,000 per year for up to three years, with a three-year renewal possible. Recipients of the major grants will be announced in January 1995.

The McKnight Collaborative Crop Research Program has four primary aims:

- to support plant research on topics important to improved food production in less developed countries or regions of the world;
- to increase the capacity of scientists in less developed countries to carry out basic and applied plant biology research;
- to establish collaborative partnerships among teams of top plant

scientists in universities and national programs of less developed countries and counterparts in the United States; and

- to increase the likelihood that the results of research supported by this program are applied in the agricultural practices of less developed countries.

The program has been shaped and is overseen by an oversight committee of distinguished plant, agricultural, and social scientists from six countries. The committee is chaired by Robert M. Goodman, University of Wisconsin-Madison, who also is a member of ASPP and is serving on the Society's newly created committee on public affairs. Goodman's Oversight Committee is charged by the McKnight Foundation with evaluating proposals funded by the planning grants, making recommendations to the Foundation directors for funding, and monitoring the progress of the projects during the six-year life of the program.

The nine ASPP members who have received the initial planning grants and their projects are:

- Henry T. Nguyen, Texas Tech University (with Mulu Ayele, Ethiopia; Abraham Blum, Israel): *Physiological, Genetical and Molecular Basis for Tef Improvement in Ethiopia*

- Roger Beachy, The Scripps Research Institute, Maarten Chrispeels, University of California, San Diego, and Dulce Eleonora de Oliveira, Universidade Federal do Rio de Janeiro, Brazil (with Claude M. Fauquet, USA; Rogerio Margis, Maria Fatima Grossi de Sa, Josias Correa de Faria, Elibio L. Rech, Simone da Graca Ribeiro, Brazil): *Transgenic Approaches to Produce Insect and Virus Resistant Beans*
- Hector E. Flores, Pennsylvania State University (with Rolando Estrada Jimenez, Peru): *The Andean Root and Tuber Crops: Realizing the Promise of Forgotten Foods*
- James H. Lorenzen, North Dakota State University (with Robert L. Plaisted, USA; Felix H. Franca, Brazil; Julio C. Kalazich, Chile): *Obtaining Potatoes Less Dependent on Insecticides through a Type of Broad Spectrum Resistance Mediated by Glandular Trichomes*
- John I. Yoder, University of California, Davis, and Michael P. Timko, University of Virginia (with Lytton J. Musselman, USA; S. T. O. Lagoke and D. K. Berner, Nigeria): *Integrated Striga Research and Control: An Africa-Wide Collaborative Effort with the USA*
- Clarence A. Ryan, Washington State University (with P. K. Ranjekar, India): *Genetic Improvement of Chickpea and Pigeonpea*

OCTOBER 1 DEADLINE APPROACHES FOR LIFE SCIENCES RESEARCH FOUNDATION FELLOWSHIPS

October 1, 1994, is the deadline to apply for a postdoctoral fellowship from The Life Sciences Research Foundation. Plant scientists are especially encouraged to apply because, although the foundation funds postdoctoral fellowships in all areas of the life sciences, relatively few applications have been received from plant scientists in the past.

The Life Sciences Research Foundation comprises 21 sponsors, most of

which are pharmaceutical companies. However, included among the sponsors is the U.S. Department of Energy's Division of Energy Biosciences, which over the years has contributed the funds to support plant science fellowships. The fellowships pay \$35,000 per year, are for three years, and must be undertaken at nonprofit institutions.

For more information on the postdoctoral fellowship program of The Life Sciences Foundation, contact Scientific

Office, c/o Lewis Thomas Laboratories, Princeton, NJ 08544, telephone 609-258-3551; or Administrative Office, 115 West University Parkway, Baltimore, MD 21210, telephone 410-467-2597.

Gatherings

All announcements are subject to editing. Wherever possible, submit announcements via e-mail to jearlson@access.digex.net. Alternatively, mail submissions to Jody Carlson, *ASPP Newsletter*, 15501 Monona Drive, Rockville, MD 20855-2768. Because announcements are scanned into the computer, **faxed transmissions will not be accepted.**

FUTURE ASPP ANNUAL MEETING SITES

- 1994—Portland, Oregon**
Saturday, July 30 through
Wednesday, August 3
- 1995—Charlotte, North Carolina**
Saturday, July 29 through
Wednesday, August 2
- 1996—San Antonio, Texas**
Saturday, July 27 through
Wednesday, July 31

AUGUST

August 14-19

Gordon Conference

Salinity Tolerance in Plants

Tilton, New Hampshire

Organizers: M. A. Bisson and F. DuPont. Sessions and speakers: Breeding, genetics, and whole plant aspects of salt tolerance—E. Epstein (discussion leader), J. Dvorak, T. J. Flowers, R. Munns; Metabolic responses to salinity—J. A. C. Smith (discussion leader), H. J. Bohnert, M. Popp; Osmoprotectants—D. Rhodes (discussion leader), A. Hanson, W. Loescher, L. N. Csonka; Co-transport systems—F. M. DuPont (discussion leader), B. Barkla, L. Counillon; Channels—M. A. Bisson (discussion leader), E. Blumwald, S. Tyerman, C. Kung; ATPases—L. Taiz (discussion leader), L. Wimmers, M. Binzel; Salt-induced gene expression—R. Bressan (discussion leader), P. M. Hasegawa, J. Cushman, D. Ho; Cell walls and growth responses—J. Dainty (discussion leader), G. Cramer, A. D. Tomos; Hormones—H. J. Bohnert (discussion leader), M. Guiltinan, E. Bray. Contact Dr. Carlyle B. Storm, Director, Gordon Research Conferences, University of Rhode Island, P. O. Box 984, West Kingston, RI 02892-0984; telephone 401-783-4011, fax 401-783-7644.

August 16-19

Plant Biotechnology Methods

Pennsylvania State University

University Park, Pennsylvania

Contact: Biotechnology Institute, The Pennsylvania State University, 519 Wartik Lab, University Park, PA 16802-9959.

August 29-September 1

Environmental Constraints and Oaks:

Ecological and Physiological Aspects

Nancy, France

This international symposium is sponsored by INRA, IUFRO, and EUROSILVA. The program will consist of six sessions, each containing invited lectures, voluntary communications, and posters. The sessions are: (1) water-stress-induced dysfunctions in oak tree physiology: effects of drought, waterlogging, and associated constraints; (2) interactions between environmental constraints and pathogenesis; (3) effects of climate change and elevated CO₂ on oak physiology and ecology; (4) ecology and growth of oak stands; (5) ecological and physiological analysis of oak decline; and (6) ecological diversity and population genetics of oak species. Those interested are invited to present research results related to one of the six sessions as oral communications or posters. The proceedings will be published in a special edition of *Annales des Sciences Forestières*. For further information, please contact the symposium secretariat: E. Dreyer or J. Bohin, U.R. Ecophysiologie Forestière, INRA-Nancy, F 54280, Champenoux, France; telephone 33-83-39-40-41, fax 33-83-39-40-69, e-mail quercus@nancy.inra.fr or Richard E. Dickson, Forestry Sciences Laboratory, 5985 Highway K, P.O. Box 898, Rhinelander, WI 54501; telephone 715-362-7474, fax 715-362-7816.

SEPTEMBER

September 5-9

Interdisciplinary Congress on

Plant Biomechanics

Montpellier, France

The Congress will emphasize the importance of interactions between biological, materials science and engineering aspects of plants, stressing also their relevance to agricultural, horticultural, silvicultural or industrial applications. The program will consist of submitted papers, lectures, and roundtable discussions on adaptive mechanical design of plants, biomechanics of growth, and short-term biomechanical responses. Sponsoring organization is the French Comité National de la Recherche Scientifique. The scientific committee includes R. R. Archer, P. Baas, J. Crabbe, P. Cruziat, A. R. Ennos, B. Gardiner, D. Guitard, F. Halle, M. Jaffe, G. Jeronimidis, K. Ruel, B. Monties, V. Mosbrugger, J. C.

Roland, W. Silk, T. Speck, H-Ch. Spatz, B. Thibaut, J. Vincent. To obtain further details, contact Bernard Thibaut, LMGC "Bois," CP 81, U. Montpellier II, Place Eugene Bataillon, 34095 Montpellier Cedex, France; telephone 33 67.14.34.31, fax 33 67.54.48.52.

September 7-9

Manipulation of Photosynthetic Carbon

Metabolism to Improve Crop Productivity

Rothamsted Experimental Station,

Harpenden, U.K.

This meeting is organized by Rothamsted and the Plant Metabolism Group of the Society of Experimental Biology to mark the retirement of Dr. Alfred Keys. Invited and contributing speakers will discuss recent advances in primary photosynthetic carbon metabolism and opportunities for engineering it to improve the efficiency of crop production. Sessions will include: photosynthetic efficiency in relation to crop productivity; alternative pathways for carbon fixation; constraints to Rubisco activity—identification and removal; genetic approaches to manipulating photosynthesis and environmental interactions. Further details are available from Dr. M. A. J. Parry, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ, UK; telephone 0582 763133, fax 0582 760981.

September 12-14

Protein Phosphorylation in Plants

Long Ashton Research Station

Bristol, United Kingdom

This meeting is sponsored by the Phytochemical Society of Europe, the Plant Metabolism Group of the Society for Experimental Biology, and the Industrial Biochemistry and Biotechnology Group of the Biochemical Society. Sessions will include: The role of protein phosphorylation in the regulation of plant metabolism; Cell cycle regulation; Molecular cloning of plant protein kinases; Protein phosphorylation in signal reception and transduction. Invited speakers include: G. Hardie, C. MacKintosh, H. Nimmo, P. Gadal, C. Foyer, S. Huber, D. Inze, D. Dudits, M. Kreis, N. Halford, B. Kohorn, A. Trewavas, G. Scherer, J. R. Ecker, J. Walker. For further details, please contact P. R. Shewry, N. G. Halford, or R. Hooley, Department of Agricultural Sciences, University of Bristol, AFRC Institute of Arable Crops Research, Long Ashton Research Station, Bristol, BS18 9AF; telephone 2-75-392181; fax: 2-75-394007

September 12-17

8th European Bioenergetics Conference
Valencia, Spain

Contact: Eduardo Real, EBE 94, Centro de Investigaciones Biológicas, Velazquez 144, 28006 Madrid, Spain; fax 34-1-562-7518, e-mail ciber12@cc.csic.es.

OCTOBER

October 2-6

22nd Aharon Katzir-Katchalsky Conference
Plant Molecular Biology: Potential Impact
on Agriculture and the Environment
Küln, Germany

Organizers: Jeff Schell, Ilan Chet, and Robert Fluhr. The Aharon Katzir-Katchalsky Conferences are a series of symposia on timely scientific topics. The aim of the 22nd conference is to present work in plant molecular biology that has potential agricultural and biotechnological applications. Sessions will include: Modulating Biochemical Pathways; Control of Growth; Ripening and Fertility; Natural and Engineered Resistance Genes; Environmental Interactions; Recognition and Biological Control; Signal Reception and Transduction. Contact: Secretariat 22nd AKK Conference, Aharon Katzir-Katchalsky Center, Weizmann Institute of Science, Rehovot 76100, Israel; telephone 972-8-342148, fax 972-8-474425.

October 2-6

Second International Symposium on the
Applications of Biotechnology to Tree
Culture, Protection, and Utilization
Minneapolis, Minnesota

This meeting is being held in conjunction with the TAPPI R&D Division Biological Sciences Symposium. Preliminary topics: commercialization of tree biotechnology; tissue culture; tree genetics, physiology and stress; tree protection (insects/diseases). Concurrent sessions with TAPPI: bioprocessing/biopulping/bioremediation; gene mapping/molecular biology. Contributed sessions and poster presentations. For further information, please contact: Edith Franson, Executive Secretary, Tree Biotechnology Symposium, Forestry Sciences Laboratory, P.O. Box 898, Rhinelander, WI 54501; telephone 715-362-7474, fax 715-362-7816.

October 15-22

Short course: Optical Microscopy and
Imaging in the Biomedical Sciences
Marine Biological Laboratory
Woods Hole, Massachusetts

Designed for 24 research scientists, physicians, postdoctoral trainees, and advanced graduate students in animal, plant, medical, and material sciences as well as non-biologists seeking a comprehensive introduction to microscopy and videoimaging. The course consists of lectures, laboratory exercises, demonstrations, and discussions

that will enable the participant to obtain, record, and interpret microscope images of high quality. Instruction on state-of-the-art equipment will be provided by experienced staff from universities and industry. Topics to be covered include: principles of microscope design and image formation; bright and dark-field, phase contrast, polarized light, differential interference contrast, interference reflection, and fluorescence microscopy; confocal scanning microscopy, digital image restoration, and 3-D reconstruction; video imaging, recording enhancement, and intensification; analog and digital image processing and analysis; and fluorescent probes and ratio-imaging. Application of the optical methods to live cells will be emphasized; other specimens will be covered. Tuition: \$1690, includes room and board. Applications due: August 16. Course Director: Colin S. Izzard of SUNY, Albany, telephone 518-442-4367. For forms and information contact: Admissions Coordinator, Marine Biological Laboratory, Woods Hole, MA 02543; telephone 508-548-3705, ext. 401, e-mail admissions@mbi.edu.

NOVEMBER

November 1-4

Cucurbitaceae 94: Evaluation and
Enhancement of Cucurbit Germplasm
South Padre Island, Texas

The Texas Agricultural Experiment Station, Texas Agricultural Extension Service, and USDA/ARS Subtropical Research Laboratory will host Cucurbitaceae 94 at the Radisson Resort, South Padre Island, Texas. The purpose of this meeting is to provide a forum for the presentation of current scientific information about germplasm evaluation and research activities in cucurbit crops. The scientific program will consist of posters, invited talks, and panel discussions on diseases, host-pathogen interactions, and genetics related to the enhancement of cucurbit germplasm. Molecular and genetic aspects of diseases, germplasm resources, breeding strategies, and the physiology of fruit quality are a few of the topics that will be covered in the 1994 meeting. To receive additional information on program content and registration material, contact Dr. James R. Dunlap, Texas Agricultural Experiment Station, 2415 East Highway 83, Weslaco TX 78596; telephone 210-968-5585; fax 210-968-0641, e-mail j-dunlap@tamu.edu.

November 13-16

Third International Symposium
Biosafety Results of Field Tests of
Genetically Modified
Plants and Microorganisms
Monterey, California

Contact: Alvin Young, USDA, Office of Agricultural Biotechnology, telephone 703-235-4419, fax 703-235-4429.

1995

JANUARY

January 7-13, 1995

Keystone Symposium
Plant Cell Biology: Mechanisms, Molecular
Machinery, Signals, and Pathways
Taos, New Mexico

Organizers of this meeting are Natasha Raikhel and Christopher Lamb. Keynote address: Phytochrome Phototransduction Pathways: Genetic and Biochemical Dissection, N.-H. Chua. Keynote lecture: Genetic and Biochemical Dissection of the Secretory Pathway, R. Schekman. Sessions and presenters: Cell Surface/Extracellular Matrix: R. Quatrano, J. Nasrallah, T.-H. Kao, C. Lamb; Cell Adhesion, Cytoskeleton, and the Recognition Process: J. Nasrallah, R. Quatrano, S. Long, K. Roberts; Plasmodesmata and Nuclear Pores: K. Roberts, N. Raikhel, S. Lazarowitz, J. Carrington; Cell Division: C. Lamb, P. Doerner, T. Bisseling, V. Sundaresan; Membrane Signaling: M. Chrispeels, J. Schroeder, S. Assmann, P. Hepler, M. Sussman; The Tonoplast and Plasma Membrane: J. Schroeder, W. Frommer, M. Chrispeels, H. Sze; The ER: N. Raikhel, A. Vitale, J. Denecke, G. Galili, C. Somerville; Plastids: J. Chory, A. Staehelin, K. Keegstra, K. Cline; Cytoplasmic Regulatory Mechanisms: J. Ecker, P. Green, M. Mehdy, G. Coruzzi; Signaling to the Nucleus: P. Green, J. Chory, J. Ecker, A. Theologis, R. Dixon. Workshops: Transport Vesicle: Inside and Outside: D. P. Verma; Heat Shock Proteins and Molecular Chaperones: E. Vierling. Application and abstract deadline is September 7, 1994. Attendance is limited to 300. A small amount of funding is available to some students and postdocs to help defray the cost of the meeting. The selection of students and postdocs for this support will be based on the quality and relevance of science presented in the abstracts. For more information contact Keystone Symposia, Drawer 1630, Silverthorne, CO 80498; telephone 303-262-1230, fax 303-262-1525.

January 15-19, 1995

Plant Genome III
San Diego, California

The International Plant Genome Conference will be sponsored by the USDA/ARS and National Agricultural Library, the John Innes Centre (UK), the Rockefeller Foundation, and the International Society for Plant Molecular Biology. Session topics are: chromosome structure, isolation and transformation of agriculturally important genes, instrumentation/technology, comparative genetic mapping, QTLs/metabolic pathways. Co-chairs are S. Heller, J. Miksche, M. Gale, S. McCouch. For registration materials, poster abstract application, and exhibit information,

contact: Plant Genome III, c/o Scherago International, Inc., 11 Penn Plaza, New York, NY 10001; telephone 212-643-1750, fax 212-643-1758, e-mail scherago@biotech.net.

January 22-27, 1995

46th Congresso Nacional de Botânica Brazil
Ribeirão Preto, SP, Brasil

The annual meeting on botany, a major forum promoted by the Botany Society of Brazil for an exchange of information among plant scientists, will be held on the campus of the University of São Paulo in Ribeirão Preto. The program includes scientific expeditions, poster sessions, workshops, symposia, lectures, the 2nd Symposium on Gallery Forest, and the 4th Symposium on Bromeliaceae. For information write to: XLVI Congresso Nacional de Botânica, Dep. Biologia/FFCLRP/USP, Av. Bandeirantes, 3900, 14040-901-Ribeirão Preto, Brasil; fax 16-633-5015.

January 29-February 3, 1995

Gordon Research Conference
Temperature Stresses in Plants
Oxnard, California

Meeting Organizers: Mike Thomashow, chair; Don Ort, vice-chair. Topics and speakers will include: mechanisms of sensing temperature (T. Palva, B. Pickard, W. Gurley); role of membranes in temperature stress tolerance (N. Murata, J. Browse, P. Steponkus); heat-stress proteins (A. Gatenby, J. Jordano); links between temperature and drought stress (K. Shinozaki, T. Close, C. Lijenberg); whole-plant responses to temperature stress (J. Burke); effects of temperature on photosynthesis (E. Robertson); life at extreme temperatures (G. Zeikus); and breeding for temperature stress tolerance (J. Palta). For information regarding conference program contact: Mike Thomashow, e-mail 2267mft@msu.edu, fax, 517-353-5174. For registration and other meeting information contact: Dr. Carlyle B. Storm, Director, Gordon Research Conferences, University of Rhode Island, P.O. Box 984, West Kingston, RI 02892-0984; telephone, 401-783-4011, fax, 401-783-7644.

February 5-10, 1995

Gordon Research Conference
Chemical/Biological Synergies to Reduce
Inputs for Pest Control
Oxnard, California

The meeting will focus on rationally designed mixtures and strategies using biological and chemical mechanisms to synergistically lower inputs in weed, disease, and insect pest management; and to discuss the For registration information see October issue of *Science* or contact either of the following co-chairs (preferably by e-mail): Jonathan Gressel, Plant Genetics, Weizmann Institute of Science, Rehovot, 76100 Israel, fax 972-8-469124, e-mail lpgress2@wicmail.weizmann.ac.il; David A.

Fischhoff, Monsanto Company, 700 Chesterfield Parkway, North St. Louis, MO 63198, USA; fax 314-537-6047, e-mail dafisc@ccmail.monsanto.com.

MARCH

March 5-9, 1995

XVIII Eucarpia Symposium:
Section Ornamentals:
Ornamental Plant Improvement:
Classical and Molecular Approaches
Tel Aviv, Israel

This meeting is organized jointly with the Kennedy-Leigh Centre for Horticultural Research of The Hebrew University of Jerusalem. Topics will include: breeding of ornamental crops; genetic manipulation of ornamental crops; molecular markers for the identification and breeding of ornamentals; genetic resources for widening the assortment of ornamental crops; environmentally friendly ornamentals; molecular control of flower development; genetics of flower longevity; tissue culture for ornamental breeding. Abstract deadline: November 1, 1994. Registration deadline: December 30, 1994. For further information, contact: Dan Knassim Ltd., P. O. Box 57005, Tel Aviv, 61570 Israel; telephone 972-3-5626470, fax 972-3-5612303.

March 26-31, 1995

5th International
Botanical Microscopy Meeting
Plant Cell Biology
Oxford Brookes University
Oxford, England

The program of this meeting will include: microtubule and cytoskeletal dynamics, microscopy of living cells and ion imaging, plant cell organization, molecular mechanisms of plant development, plant-microbe interactions. Keynote speakers: B. Gunning, H. Shibaoka, J. Hush, S. Gilroy, K. Oparka, K. Roberts, M. Parthasarathy, Z. Cande, J. Doonan, R. Howard, A. Hardham. Attendance will be limited to 150. For further information, contact Karen Hale, Royal Microscopical Society, 37/38 St. Clements, Oxford, OX4 1AJ; telephone 44-865-248768, fax 44-865-791237.

March 26-April 1, 1995

Keystone Symposia, Concurrent Meetings
* Frontiers of Plant Morphogenesis
* Signal Transduction in Plants
Hilton Head Island, South Carolina
Organizers of Frontiers of Plant Morphogenesis are Richard J. Cyr and Barry A. Palevitz. Organizers of Signal Transduction in Plants are Daniel F. Klessig and Winslow Briggs. The purpose of the morphogenesis meeting is to provide a common forum for workers in the fields of cell biology, molecular genetics, and signal transduction to come together and discuss key issues in morphogenesis. These issues concern the broad area

of the interface between the cytoskeleton, cell wall, and plasma membrane in morphogenesis, and how new insights can be synthesized using molecular, cellular, and biochemical approaches. The goal of the signal transduction meeting is to bring together workers in the many areas of plant biology that touch upon signal transduction to facilitate the exchange of ideas, results, and approaches. Most major questions concerning signal transduction in plants remain unanswered, but several recent developments have strongly impacted research on signal transduction in plants: the dramatic explosion of our knowledge of the molecular, cellular, and developmental biology of plants; genetic approaches to signal transduction using model systems; use of PCR to clone plant homologues of components of signal transduction systems in microbes and animals, and purification and cloning of the first putative plant receptors. Past applicants and attendees of Keystone Symposia will automatically receive application information. All others should write to Keystone Symposia, Drawer 1630, Silverthorne, CO 80498; telephone 303-262-1230.

APRIL

April 3-6, 1995

International Symposium on Weed and
Crop Resistance to Herbicides
University of Cordoba, Spain

This symposium will be jointly sponsored by the European Weed Research Society and the Spanish Weed Science Society. Research on herbicide resistance mechanisms in plants is one of the most important aspects within the crop and weed-herbicide area. Identification and characterization of resistant biotypes as well as the study of their resistance mechanisms can help us to develop new strategies for weed control and to improve agricultural productivity while protecting our environment and conserving our natural resources. Important efforts are especially being directed toward the design of biopesticides and developing herbicide-tolerant crops through genetic engineering techniques. General topics: herbicide target sites and resistance mechanisms associated with them; resistance mechanisms associated with herbicide metabolism and detoxification; other resistance mechanisms; biotechnological approaches to develop herbicide resistance in crops—problems and possibilities; integrated mechanical, chemical, and biological methods for weed control—managing or avoiding resistance. Deadline for abstracts: January 30, 1995. For further information or to receive a copy of the first circular, contact Dr. J. Jorrián, Departamento de Bioquímica y Biología Molecular, University of Cordoba, Apartado 3048, Cordoba, Spain; telephone 57-218439, fax 57-218563.

April 1995

Mass Spectrometry
Swansea, United Kingdom

This meeting is sponsored by the Physicochemical Society of Europe. Contact address: Dr. C. J. Smith, Department of Biochemistry, University College of Swansea, Singleton Park, Swansea SA2 8PP, UK.; telephone ++44-(0)792-295378, fax ++44-(0)792-295417

MAY

May 8-13, 1995

First International Symposium of
Sucrose Metabolism

Mar del Plata, Argentina

This meeting will commemorate the 40th anniversary of the discovery of the two sucrose metabolizing enzymes and honor the memory of their discoverers, Drs. Luis Leloir and Carlos Cardini. The aim of the meeting is to present a comprehensive and integrated view of sucrose metabolism under the following main topics: sucrose biosynthesis and its regulation; sucrose cleavage and its regulation; molecular biology of sucrose metabolizing enzymes; sucrose conversion to starch; sucrose conversion to fructans and raffinose-based polymers; sucrose transport (long distance and intracellular) and the role of sucrose in plant stress. The symposium will consist of six to eight sessions of four to five speakers each with discussion session and evening poster presentations. Those interested in receiving additional information in the future please contact: Dr. Horacio Pontis or Dr. Graciela Salerno, Fundacion para Investigaciones Biologicas Aplicadas, Casilla de Correos 1348, 7600 Mar del Plata, Argentina, telephone 54-23-74-8257, fax 54-23-74-3357; or Dr. Ed Echeverria, Citrus Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850, USA, telephone 813-956-1151, fax 813-956-4631.

JUNE

June 26-30, 1995

International Workshop
Peroxidase Biochemistry and Application
Pushchino (Moscow Region), Russia

The scientific program of this workshop will include these topics: novel peroxidase sources; gene cloning, expression, and protein engineering; peroxidase substrate specificity, stability, mechanism of action and inactivation; peroxidase in analysis, biosensors, environmental control; peroxidase in industry, production of drugs, phenolic resins, lignin biodegradation. To receive the second circular, a program, and registration forms, contact Dr. I. G. Gazaryan, Division of Chemical Enzymology, Department of Chemistry, Moscow State

University, 119899 GSP Moscow, Russia; fax 7-95-939-27-42.

JULY

July 2-7, 1995

7th International Symposium on
Preharvest Sprouting in Cereals
Abashiri, Hokkaido, Japan

Specific topics will include: Physiology and molecular biology of grain development and germination; influence of environmental, physical and agronomic factors on sprouting; genetics and plant breeding; effects of sprouting damage on cereal end products.

To receive a first announcement contact: Secretariat, 7th International Symposium on Preharvest Sprouting in Cereals, Kitami Agricultural Experiment Station, Kunneppu, Hokkaido 099-14, Japan; telephone 0157-47-21 46, fax 0157-47-2774 or M. K. Walker-Simmons, USDA-ARS, 209 Johnson Hall, Washington State University, Pullman, WA 99164-6420; telephone 509-335-8696, fax 509-335-8674, e-mail simmons@wsuvm1.edu.

July 4-7, 1995

9th International Rapeseed Congress
Cambridge, England

Since the last Congress in Saskatoon in 1991, interest in rapeseed has been aroused by awareness of the superior nutritional advantages of rape oil. There is also growing recognition of outlets for industrial purposes, for which the perceived benign effect on the environment is an added attraction. It is intended that the congress should cover these and other aspects of rapeseed production and utilization. Cambridge is in a major rapeseed growing area and has a distinguished background in agricultural research. The first announcement and call for papers is currently being distributed. Copies are available from the secretary: Denis Kimber, 44 Church Street, Haslingfield, Cambridge, CB3 7JE, England.

July 9-15, 1995

European Symposium on
Phytomorphogenesis in Plants
Sitges, Barcelona, Spain

Specific topics will include: Blue-UV light photoreception, phytochrome properties and phytochrome genes, photoregulation of gene expression, signal transduction in photomorphogenesis, photocontrol of plant growth, photomorphogenesis in lower plants, photomorphogenesis in natural conditions. Second announcement containing the final program and all details of registration and accommodation will be mailed in November 1994. Contact address: Dr. Carmen Bergareche, Departament de Biologia Vegetal, Facultat de Biologia, Diagonal 645, 08028 Barcelona, Spain; fax 34-3- 4112842, telephone 34-3-4021464.

July 14-19, 1995

15th International Conference on Plant
Growth Substances
Minneapolis, Minnesota

The scientific program will cover all aspects of plant growth regulation. The proposed program will consist of plenary sessions, concurrent symposia with invited speakers, posters, and workshops. Plenary sessions will cover subjects on: (1) signal transduction, (2) integration of growth processes, (3) hormonally regulated gene expression, and (4) generation of fundamental knowledge and applications using transgenic plants. Twenty symposia are planned, each consisting of three to five speakers, on topics including hormone biosynthesis, hormone metabolism, tropisms, flowering, hormone perception/sensitivity, and interactions of hormones with other signalling systems. Arrangements have been made to have all posters on display throughout the meetings. Workshops will be designed to accommodate last-minute breakthroughs. The organizing committee for the IPCSA meeting is chaired by Gary Gardner (University of Minnesota) and Bernard O. Phinney, president of IPCSA (University of California, Los Angeles), and includes M. Brenner, R. Coolbaugh, M. H. Goldsmith, W. Hackett, E. Jaworski, R. L. Jones, H. Kende, T. Lomax, N. Olszewski, I. Rubenstein, M. K. Walker-Simmons, and J. Zeevaert. All scientific sessions will be held at the headquarters hotel, the Hyatt Regency, in Minneapolis. This meeting will be held in conjunction with the Annual Meeting of the Plant Growth Regulator Society of America, and joint sessions are being planned that emphasize applied aspects of plant growth regulation. The first circular will be mailed this summer (1994). The second circular, containing registration and abstract preparation materials, will be sent in late 1994. Additional information can be obtained by contacting Gary Gardner, Department of Horticultural Science, University of Minnesota, 305 Alderman Hall, St. Paul, MN 55108, USA, fax 612-624-3606, e-mail ggardner@maroon.tc.umn.edu.

AUGUST

August 6-11, 1995

10th International Workshop on
Plant Membrane Biology
Regensburg, Germany

Meeting is intended to cover the following topics: pumps, carriers, channels, long distance transport processes, and transduction of chemical and electrical signals. Second announcement containing the final program and all details on registration and accommodation will be mailed in October 1994. To obtain the second announcement, contact Widmar Tanner or Norbert Sauer, Lehrstuhl für Zellbiologie und

Pflanzenphysiologie, Universität Regensburg,
Universitätsstrasse 31, 93053 Regensburg,
Germany; fax 49-941-943-3352.

August 13-17, 1995
Phytochemical Society of North America
Annual Meeting
Sault Ste. Marie, Ontario, Canada
The meeting will feature a symposium
entitled Phytochemical Redundancy in
Ecological Interactions. The theme of the
symposium will stress the diversity, overlap,
and variety of plant chemical defenses
against biological stresses including insects,
fungi, and large herbivores. Speakers for the
symposium are being solicited from persons
active in the area. Interested potential
speakers or persons with suggestions for
speakers should contact either program co-
chairperson for additional information: Dr.
James A. Saunders, Plant Sciences Institute,
USDA, Bldg. 9, Rm 5, Beltsville, MD 20705,
telephone 301 504-7477, fax 301 504-6478; Dr.
Pedro Barbosa, Department of Entomology,
University of Maryland, College Park, MD
20742, telephone 301 405-3946 office, fax 301
314-9290.

August 20-25, 1995
10th International Photosynthesis Congress
Montpellier, France
Topics: molecular organization of the
photosynthetic apparatus; photophysical and
photochemical processes; mechanisms of
energy conservation; regulation of carbon
metabolism and related enzymes; assimila-
tion of nitrogen, sulfur, and other elements;
structure of membranes, organelles, cells,
and tissues; genes and regulation of their
expression; development of the photosyn-
thetic apparatus; photosynthesis and
evolution; stress and adaptation; photosyn-
thesis in global environment; photosynthesis
in agricultural production and forestry;
design and action of herbicides; chemical
models and artificial photosynthesis;
biotechnology; photosynthesis and renewable
energy resources. A limited number of
fellowships may be granted to some students
and scientists encountering financial
difficulties. For further information, contact:
Dr. Paul Mathis (Photosynthesis Congress),
DBCM-SBE, CEA Saclay, Bâtiment 532, 91191
Gif-sur-Yvette CEDEX, France; fax 33-1-69-
08-87017.

OCTOBER

October 8-12, 1995
Third International Symposium:
Cytochrome P450 Biodiversity
Woods Hole, Massachusetts
The symposium will be held at the Swope
Conference Center of the Woods Hole
Marine Biological Laboratory. The scientific
program will focus on cytochromes P450
from microorganisms, plants, and insects,
and will include all aspects of research on
P450s from these organisms. Contact: Dr.
John C. Loper, Department of Molecular
Genetics, University of Cincinnati School of
Medicine, Cincinnati, OH 45267-0524, fax
513-558-8474.

*Start planning now for the
next annual meeting of the
American Society of Plant Physiologists,
to be held in Charlotte, North Carolina,
Saturday, July 29 - Wednesday, August 2.
Call for abstracts will appear in the
November/December issue of the
ASPP Newsletter.*