

# IS-MPMI REPORTER

International Society for Molecular  
Plant-Microbe Interactions

- Spring 1999 -

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## Molecular Plant-Microbe Interactions: 12 Years Old and Growing Stronger

**Jan E. Leach, Editor-in-Chief**

*Molecular Plant-Microbe Interactions (MPMI)*, our official Society journal, ranks high among primary literature plant journals! Considering our "specialized" niche, *MPMI's* ranking (based on number of citations per article) near journals such as *The Plant Cell* and *The Plant Journal*, two more "generalized" plant molecular and cellular biology journals, indicates our journal has a strong reputation in the scientific community. This reputation is also reflected in the increasingly international audience of *MPMI*: more than 65% of the papers in the 1998 volume of *MPMI* originated from outside the USA. This is a significant increase from the 38% observed in 1995.



When I became Editor-in-Chief for *MPMI* in 1998, I inherited a healthy and growing journal from Stanton Gelvin, the previous Editor-in-Chief. With the help of a new group of Senior Editors (Jeff Dangl, Mike Daniels, Steve Lindow, Anne Osbourn, Peter Palukaitis, Herman Spaink, and Valerie Williamson) and the energetic staff of APS Press (Patti Ek, Paul Hintz, Pam Johnson, Steve Nelson, Ina Pfefer, Jordana Anker, Jan Sampson, Rhonda Wilke, Miles Wimer), *MPMI* continues to grow and improve. Changes made in the past year include:

**Increased publication to 12 issues per year.** In its 11th year, publication of *MPMI* increased from 9 to 12 issues per year. This was the direct result of a large increase in the number of submissions of your high quality manuscripts. The number of manuscripts submitted to *MPMI* has steadily increased (240 in 1998, 226 in 1997, and 209 in 1996). Likewise, the number of papers published has increased over the past 3 years (139 in 1998, 126 in 1997, and 108 in 1996).

**A new look.** As of January, 1998, the cover of *MPMI* was changed to increase the area dedicated to the color image. We thank authors for supplying attractive, high quality images complementary to the strong science in their manuscripts.

**Added Senior and Associate Editor positions to handle more research areas.** To provide expertise to handle increases in submissions in the areas of Biocontrol and Nematode-Plant Interactions, new Senior Editor positions were established. Dr. Steven Lindow, U.C. Berkeley, filled the position of Biocontrol Interaction Senior Editor in January, 1998, and Dr. Valerie Williamson, U.C. Davis, joined the editorial board in January, 1999 to cover manuscripts dealing with Nematode-Plant Interactions. During the annual rotation of 1/3 of its members, the

Associate Editorial Board was restructured to reflect more closely the spectrum of manuscripts we are receiving now and expect to receive in the future. For example, Associate Editors were added with expertise in cytology of plant-microbe interactions and analyses of quantitative trait loci.

*Addition of a new 'Technical Advances' section.* This section, added in 1998, includes short manuscripts describing in detail novel experimental techniques and their uses.

*Acquired assistance for authors in need.* Beginning in 1999, the IS-MPMI Board of Directors has authorized a limited amount of funds to assist authors who are unable to pay page charges, such as those from developing countries. Authors must submit a request for the waiver of charges at the time of submission to the appropriate Senior Editor, who will determine the validity of the request. This cost waiver covers the first five pages of the manuscript, and does not include color pages.

*Launched "MPMI Online."* *MPMI Online* has several advantages to the print version. The online version has convenient search features and links and is available to readers as much as 3 weeks earlier than the print version. Increasing subscriptions to *MPMI Online* indicate good reader acceptance.

*New for 1999: Genomics, a new area for MPMI.* Recent advances in genomics, the study of genes and their function, are bringing about a revolution in our understanding of the molecular mechanisms of plant disease and resistance. *MPMI* now welcomes submissions of manuscripts focusing on structural or functional analysis of genes involved in plant-microbe interactions. These manuscripts, which may include Technical Advances, can be submitted to any relevant Senior Editor or the Editor-in-Chief.

Increased options for color & other enhancements in *MPMI Online*. Many authors indicated an increased need to publish in color, but found the cost prohibitive. To meet this need, the color plate charge was reduced in 1996 to \$500 for each of the first two pages, and \$250 for each additional page. As a result, the number of color pages published in the journal has doubled (37 in 1996, 42 in 1997, and 89 in 1998). Now, we offer authors even more low cost options for exciting enhancements in papers published *MPMI Online*. For example, for a low price, authors can publish a black-and-white figure in the paper copy of *MPMI* and a color version of the exact same figure in *MPMI Online*. Links to video clips, DNA or protein sequence databases or 3-D structures of proteins are examples of some of the features you can include in online papers. *MPMI Online* offers many possibilities: we will consider any reasonable suggestions you might have for enhancing your manuscript!

In closing, I'd like to offer a special thanks to the many reviewers who, through their critical and insightful reviews, have contributed to the strength of *MPMI*. Comments and suggestions to improve *MPMI* or *MPMI Online* further are always welcome from IS-MPMI members or authors. These can be sent directly to me ([JELEACH@KSU.EDU](mailto:JELEACH@KSU.EDU)) or to any Senior Editor.

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**TOP**

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## EMPLOYMENT OPPORTUNITIES

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### Ph.D. Student Position

A Ph.D. student position in autoregulation of root nodule formation on leguminous plants is available. The number of Rhizobium induced root nodules on leguminous plants is regulated by the plant. We want to find the signals involved in this regulation. Our approach is to find genes involved and to use these in bioassays to find the autoregulation signals. We are looking for a person with a background in Molecular Biology and with interest in Plant Morphogenesis and Plant - Microbe Interactions. Inquiries about this position can be made with Dr. A.A.N. van Brussel (E-mail: [Brussel@rulbim.leidenuniv.nl](mailto:Brussel@rulbim.leidenuniv.nl)) or Prof. Dr. J.W. Kijne (E-mail: [Kijne@rulbim.leidenuniv.nl](mailto:Kijne@rulbim.leidenuniv.nl)).



The student will be appointed full time by Leiden University for a period of four years and the study will be concluded with a doctoral thesis.

### Postdoctoral Fellowship

A postdoctoral fellowship will be available starting May 1, 1999 to study molecular aspects of in planta virulence gene expression of *Pseudomonas syringae* as effected by temperature. We are seeking a highly motivated individual with a Ph.D. degree in plant pathology, microbiology, or biochemistry and with experience in protein-biochemistry, microscopy, and/or bacterial genetics. Candidates must be a citizen or permanent resident of the European Union. The Max Planck Institute for terrestrial Microbiology is a well-funded research facility with state-of-the-art scientific equipment and is located in Marburg, Germany. Please immediately forward your letter of application, CV, certificates, a short statement of research interests, and addresses of two references to: Dr. Matthias Ullrich, Max-Planck-Institut für terrestrische Mikrobiologie, Karl-von-Frisch-Strasse, 35043 Marburg, Germany, E-mail: [ullrichm@mailier.uni-marburg.de](mailto:ullrichm@mailier.uni-marburg.de).

### Research Fellowship

ABC transport proteins may play a significant role in virulence of plant pathogens and fungicide sensitivity. The Wageningen Agricultural University has several projects in this new field of interest. In one project the role of the ABC transporter BcatrB is being investigated in relation to the activity of compounds toxic to *Botrytis cinera*. These studies include expression analysis of the gene after treatment of mycelium with fungicides and natural toxic products by means of Northern analysis and expression of GFP constructs. Attention will be paid to the phenomenon of multidrug resistance. The project runs in parallel with an ongoing Ph.D. project on this topic.

The fellowship will be funded for one year. The candidate should have a MSc or Ph.D. degree in molecular biology or a related research field, with excellent university certificates. Experience with expression analysis is required. The stipendium will be between Dfl 1,700 and Dfl 2,500 per month depending upon research experience. Some travel money is also available. Further information can be obtained from the website [www.spg.wau.nl/fyto](http://www.spg.wau.nl/fyto) and inquiries can be made by e-mail to [maarten.dewaard@medew.fyto.wau.nl](mailto:maarten.dewaard@medew.fyto.wau.nl). Applicants should submit a full CV, including a list of publications, and two letters of reference to Dr. Maarten de Waard, Laboratory of Phytopathology, P.O. Box 8025, 6700 EE Wageningen, The Netherlands. Phone: +31 317 483123, FAX: +31 317 483412.

### Postdoctoral Fellowship

A postdoctoral fellowship sponsored by Academia Sinica will open Feb. 1999 for a candidate who has a Ph.D. and is trained in molecular biology, plant pathology or cell biology. The fellowship provides health insurance and 13.5 months of 50,000 nt\$ per month pay (equivalent to

about 9,000 US\$ per year). The position will involve work on the molecular mechanism of plant hypersensitive response induced by plant pathogens. This tenure track faculty position is open immediately for the candidate who has at least 2 years of postdoctoral training related to the field of MPMI. Academia Sinica, Taipei, is a highly equipped and internationally recognized research institution supported by the Taiwan government. Applicants should send CV to Dr. FENG, Teng-yung, Institute of Botany, Academia Sinica by e-mail: [bofeng@sinica.edu.tw](mailto:bofeng@sinica.edu.tw).

#### **Postdoctoral Research Associate**

A postdoctoral fellow position is available immediately to study the molecular basis of satellite RNA associated with bamboo mosaic virus. Topics includes the interactions between the virus, satellite and hosts. Candidates with Ph.D. degree and experience in molecular biology are encouraged to apply. Salary ranges US\$ 22,000 - 28,000 per year depending on experience. Interested persons are encouraged to send curriculum vitae, copies of transcripts and three reference letters to: Dr. Na-Sheng Lin, Institute of Botany, Academia Sinica, Taipei, Taiwan 115, R.O.C., FAX: 886-2-27827954, e-mail: [nslin@ccvax.sinica.edu.tw](mailto:nslin@ccvax.sinica.edu.tw).

#### **Research Associate / Postdoctoral Position in Plant Signal Transduction**

A position is available to study signal transduction during resistance responses in Arabidopsis and tobacco to microbial pathogens. The research will focus on the use of biochemical and genetic approaches to define components of salicylic acid- and nitric oxide-mediated signaling pathways (PNAS, 1998, 95: 7433, 10328; Plant Cell Feb. 1999). Extensive experience in protein purification or classic genetics is necessary. Appointment will be made at research associate or postdoctoral level depending on experience. Send CV, cover letter detailing experience and HAVE three letters of recommendation sent to: Daniel Klessig, Waksman Institute, Rutgers University, 190 Frelinghuysen Road, Piscataway, NJ 08854. Rutgers University is an Equal Opportunity/Affirmative Action Employer.

#### **Microbiologist**

The Microbial Properties Research (MPR) Unit of the National Center for Agricultural Research (NCAUR), USDA-ARS, Peoria, Illinois, is seeking a postdoctoral research associate. The NCAUR is a major Agricultural Research Service (ARS) facility employing over 200 scientists and technicians. The MPR Unit maintains the ARS Culture Collection (NRRL) which is used to conduct interdisciplinary research on the molecular systematics, phylogenetics and diagnostics of agriculturally and industrially important microorganisms to address national research needs. The Unit has state-of-the-art research facilities, including 3 automated DNA sequencers. The research associate will participate in a project focusing on the molecular systematics and population biology of the mycotoxigenic and plant pathogenic filamentous fungus *Fusarium*. Candidates for this position should have a strong research background in molecular systematics and/or population biology. Experience in molecular phylogenetics using DNA sequence data is an added consideration. Candidates need to be able to plan and conduct independent research. Recent Ph.D. is required. Salary is GS-11 (\$38,593). Please send curriculum vitae and names of three references to Dr. Kerry O'Donnell, NCAUR/ARS/USDA, 1815 N. University Street, Peoria, IL 61604-3999; e-mail: [kodonnell@sunca.ncaur.usda.gov](mailto:kodonnell@sunca.ncaur.usda.gov). USDA/ARS is an equal opportunity employer.

#### **Postdoctoral Position**

A postdoctoral position is available beginning April 1999 to study molecular and biochemical events controlling root and nodule function in alfalfa and other legumes. The successful candidate will use a combination of molecular genetic and biochemical approaches to dissect developmental events controlling lateral root formation in lupin and/or metabolic regulation of nitrogen and carbon metabolism in alfalfa. The ultimate goal is to improve nutrient acquisition and adaptation to stress. A strong background in molecular biology and biochemistry is required. The position has at least two years of guaranteed funding with a starting salary of 31-33K plus medical and vacation benefits. Applicants please send a letter of application, curriculum vitae, and names plus addresses for three references to Carroll Vance, Agronomy and Plant Genetics, University of Minnesota, 1991 Upper Buford Circle, St. Paul, MN 55108; Phone: 612-625-5715; e-mail: [vance004@tc.umn.edu](mailto:vance004@tc.umn.edu).

### **Postdoctoral Position**

A postdoctoral position to study signal transduction pathways in plant-fungi interactions is available. The research will focus on the mechanisms that activate the production of reactive oxygen species and the subsequent gene expression. Please send a letter of interest and curriculum vitae to Dr. Alex Levine, Dept. Plant Sciences, The Hebrew Univ. of Jerusalem Givat-Ram, Jerusalem 91904, Israel Phone: +1(972)2 658 6543, FAX:(972)2 658 4425.

### **Postdoctoral Position**

A post-doctoral position is available to work on the interactions between proteins of lettuce (*Lactuca Sativa*) and lettuce mosaic virus (LMV) using the yeast two-hybrid system. The position is available immediately, for one year renewable, to study the interactions between proteins of a plant RNA virus and of its host. It is not open to French candidates.

Lettuce mosaic virus (LMV) is one of the most devastating viruses of lettuce worldwide. LMV belongs to the Potyvirus genus, the largest plant RNA virus group. We are working on the interactions between LMV and its host, lettuce, and in particular we want to understand better the molecular bases of biological properties such as symptom expression, resistance-breakdown and seed-transmission. To do this, we are using infectious LMV cDNAs and the yeast two-hybrid system.

The LMV group, 5 research scientists, is located in Bordeaux, France (yes, 2 hours drive from the mountains, 1 hour from the Atlantic Ocean and within a famous wine-growing area!), in a campus of the French National Institute for Agronomical Research (INRA), and more specifically in a joint Plant Molecular Biology Institute (IBVM) that gathers people from INRA, CNRS (the largest French research agency) and two universities, working in fields such as Plant Physiology, Plant Cell Biology, Genomics, Fungi Genetics and Plant Pathology. We have all laboratories and greenhouse facilities necessary for the present project.

The candidate will be in charge of the program we have already initiated to detect and characterize interactions between LMV and lettuce proteins using the yeast two-hybrid system (2H). Specifically, a cDNA library has already been obtained from a suitable lettuce genetic accession, in a vector that allows its expression in frame with the activation domain of GAL4, as well as constructs to express several viral proteins in frame with the DNA binding domain of LexA. The first step will be screening the library with viral baits chosen according to the results obtained in other of our research programs, and once lettuce proteins have been identified that interact with those, examine the biological relevance of these interactions in "true" plants.

We have some expertise in 2H since we have been studying the interaction between viral proteins for a bit more than a year (one manuscript submitted to Virology), and plant molecular virology, our primary expertise is not questioned.

Candidates interested in this offer, or willing to receive more information, should contact Olivier Le Gall, Virologie Végétale, INRA Bordeaux-Aquitaine, BP 81, 33883 Villenave d'Ornon Cedex, FRANCE. Phone: +1+33(0)556 843 205, FAX: +1+33(0)556 843 222, e-mail: [legall@bordeaux.inra.fr](mailto:legall@bordeaux.inra.fr) or directly send a CV, including a list of publications, along with the name and addresses of 3 possible references.

### **Head, New Department of Plant Sciences Montana State University - Bozeman**

Plant Sciences Department seeks dynamic individual to lead strongly interactive 26 tenure-track and 10 research faculty. Annual expenditures of \$5 million support strong research, teaching, and extension programs in Plant Pathology, Plant Biology, Plant Genetics, Crop Science, and Horticulture; B.S., M.S., and Ph.D. programs with 140 undergraduate and 30 graduate students; state-of-the-art laboratory and plant-growth facilities with a new Ag Biosciences facility. Requires a doctorate in a plant science discipline; academic qualifications for appointment as associate or full professor. Must request complete application materials from Sarah Briggs, Plant Sciences Dept, 513 Leon Johnson Hall, Bozeman, MT 59717-3140, Phone: (406)994-4833, FAX: (406)994-1848, e-mail: [ZPL7001@montana.edu](mailto:ZPL7001@montana.edu).

### **Assistant Professor**

The Department of Plant Pathology at the University of Missouri invites applications for an 11-month, Tenure-Track Faculty Position at the level of Assistant Professor with a starting date of 1 January 2000. We seek an individual with contemporary molecular expertise in an area of research involving plant responses during plant-pathogen or plant-symbiont interactions. Interactions may include those between viral, prokaryotic, or eukaryotic pathogens/symbionts and their plant hosts. Individuals studying membrane biology or signaling systems are particularly encouraged to apply. The successful candidate is expected to develop a creative, externally-funded research program that includes training of graduate students, and to participate in teaching courses in his or her area of expertise. The appointment will be 80% research, 20% teaching. A Ph.D. in an appropriate field is required, and post-doctoral experience is desirable. Submit a cover letter, curriculum vitae, a 1-2 page statement of research and teaching interests, copies of no more than 3 publications, and a list of names and contact information (including e-mail addresses) for three individuals who would be willing to send letters of recommendation. Although applications will be accepted until a successful candidate is identified, applications received by 13 August 1999 will be given priority. Applications should be sent to: Chair, Plant Pathology Search Committee, 205 Curtis Hall, University of Missouri, Columbia, MO, 65211. For more information contact Dr. J.D. Mihail, [mihailj@missouri.edu](mailto:mihailj@missouri.edu). The University of Missouri is an equal opportunity/ADA institution.-1/99

### **Postdoctoral Position**

A Postdoctoral position proposed by Dr. Denis Tagu, INRA - Nancy, France. Our group is involved in deciphering the cellular and molecular processes involved in ectomycorrhiza formation. Ectomycorrhiza is a symbiotic organ formed between tree roots and mycelium from filamentous fungi. The confrontation of the two symbionts provokes large changes in the morphology of the fungal cells, among them branching and swelling. In the last 5 years, we have characterized several fungal cell wall proteins and genes regulated during ectomycorrhiza development. We have identified adhesin-like proteins and hydrophobins. However, no regulatory genes have been cloned and no demonstration of their role in mycorrhiza differentiation has been performed. In order to isolate regulatory genes involved in the fine regulation of ectomycorrhiza formation, we plan to construct a library of mutated mycelium through genetic transformation, by insertional mutagenesis. The project is thus focused on: 1) optimization of a transformation system of the Basidiomycete *Pisolithus tinctorius* (biolistic) and 2) establishment of a collection of 1000 to 2000 transformants resistant to hygromycin. This collection will then serve for the screening of mutants in their capacity to form ectomycorrhizas.

The applicant should have a Ph.D. and a good background in molecular biology. Experience in cellular biology of fungi is also required. The position will be opened in 2000 for one year, with a salary of about 1600 euros monthly. Our group is composed of 6 permanent scientists all devoted to ectomycorrhiza research, from field experiment to molecular biology (please visit our web site: [mycor.nancy.inra.fr](http://mycor.nancy.inra.fr)). Among them, Francis Martin (head of the lab) is involved in the collection of Expressed Sequence Tags of ectomycorrhizas and in high density filter hybridization technology, Frederic Lapeyrie is involved in signal molecules exchanged between the two partners and Denis Tagu (responsible for this project) is involved in expression of cell wall proteins and genes. For inquiries, e-mail: [tagu@nancy.inra.fr](mailto:tagu@nancy.inra.fr). Send your application with curriculum vitae and names and addresses of two academic referees to: Dr. Denis Tagu, INRA-Nancy, Microbiologie Forestiere, 54280 Champenoux, France.-1/99

### **Positions Wanted**

Postdoctoral position in Plant Science in The Netherlands wanted. Experience includes Molecular Biology, Biochemistry and Physiology in the plant-pathogen interactions field. If you have a position open please contact: Ana Laxalt, IIB CC 1245 7600 Mar del Plata, Argentina. Phone: +54-223-4753030, FAX: +54-223-4753150, e-mail: [amlaxalt@mdp.edu.ar](mailto:amlaxalt@mdp.edu.ar).

you would like to see included in the next issue of the IS-MPMI Reporter to be published May/June send it to: Kayleen Larson, IS-MPMI Reporter, 3340 Pilot Knob Road, St. Paul, MN 55121 USA. Phone: +1.651.454.7250, FAX: +1.651.454.0766, e-mail: [klarson@uslink.net](mailto:klarson@uslink.net).

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## A COLUMN FROM THE PRESIDENT

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### **Governments, Science Policy and Basic Research**



The most common language in many business circles these days is about the inevitability of globalization and the role of the market place. Increasingly the "old" idea of the public good becomes marginalized as governments around the world try to win wealth from the science research that they support and, as a consequence, basic research suffers. Many governments have been impressed with the rise of Japan throughout the 1980s, which had a steady flow of profitable innovation without much care for basic research (*Nurturing Creativity in Research*, edit. C. B. Osmond, Published RSBS, 1996). "So why should we not support applied research?" is the common response by politicians, bureaucrats and economists! The supposition is that wealth creation can be sustained without basic or fundamental research.

Basic research is not only a cultural process of an advanced society, building its knowledge base and civilizing processes, but it is a nation's "eyes and ears" on the world. The majority of scholarship of the planet is done in the Northern Hemisphere. By participating in high quality fundamental research a nation obtains first-hand access to the "club" of knowledge generators. As a result, a nation has conduits into this network of information control; it has first-hand insight into (a) what is being (or not being) done, (b) who is paying for it to be done and, (c) what some of the expected outcomes in new technologies, ideas and future control might be. This enables a nation to evaluate the "true price" and value of new technologies and whether it is better (or possible) to pursue important replacement policies in various technological areas. To be able to engage in this process is fundamental to national survival in the 1990s and the 21st century.

Basic research and scholarship is the necessary investment that a modern advanced nation must pursue for its own long term survival. It is the "investment capital" into global knowledge and future innovation. Basic research creates the fund from which the practical applications of knowledge must be drawn. It is a long-term process and ceases to be basic research if immediate results are expected on short-term support. It is crucial to recognize that many important research results start as surprises whose implications can easily be missed, and that there is no substitute for careful observation, thoughtful analysis, and scientific skill. Moreover, it remains the most effective way of training skilled people and of learning about the world in which future wealth will be created and enjoyed.

So why raise all this? Well it is because of the most interesting comparisons that can be made of current government policies in five different countries. We can only briefly summarize these here, but enough to give you the idea.

**In the USA:** In 1945 Dr. Vannevar Bush, the respected maker of science policy, wrote a report to President Truman which became the philosophical basis of the USA National Science Foundation (NSF). From among many ideas in his report there are several statements that deserve special consideration here including the following:

A nation which depends upon others for its new basic scientific knowledge will be slow in its industrial progress and weak in its competitive position in world trade. Thus, the simplest and most effective way in which the government can strengthen industrial research is to support basic research. There is a perverse law governing research: Under the pressure for immediate results, and unless deliberate policies are set up to guard against this, applied research invariably drives out pure research. The moral is clear: It is pure research which deserves and requires special protection and specially assured support.

Thus, it is no accident that today the USA is a world leader in many new technologies which have blown away the old strategies for economic success (Lester Thurow, in *Head to Head, The Coming Economic Battle Among Japan, Europe, and America*, 1992). Thurow goes on in discussing technological advantage:

In the past comparative advantage was a function of natural-resources endowments and factor proportions (capital-labor ratios) ... Consider what are commonly believed to be the seven key industries of the next few decades - microelectronics, biotechnology, the new materials industries, civilian aviation, telecommunications, robots plus machine tools, and computers plus software. All are brain-power industries. Each could be located anywhere on the face of the globe. Where they will be located depends upon who can organize the brain-power to capture them. In the century ahead comparative advantage will be man-made. Since technology lies behind man-made comparative advantage, research and development becomes critical. In the past the economic winners were those who invented new products. The British in the nineteenth century and the Americans in the twentieth century got rich doing so. But in the twenty-first century sustainable competitive advantage will come much more out of new process technologies and much less out of new product technologies. Reverse engineering has become an art form. New products can easily be produced. What used to be primary (inventing new products) becomes secondary, and what used to be secondary (inventing and perfecting new processes) becomes primary.

It is now considered that the USA is the intellectual leader in all these seven key industries outlined above. Leadership has been built on the investment made by President Truman in the 1940s following the recommendations of Dr. Bush. In 1998/99 the appropriation for Research and related activities to the NSF budget is \$US2.725 billion and for agricultural research \$US600 million for new competitive research funding over the next five years beginning in FY 1999.

**In the UK:** The economic policies of the Conservative government of Mrs. Margaret Thatcher went something like this: "cut the funding and balance the budget at all costs; subject universities to the discipline of the market place; and universities must be efficient, effective and accountable." These funding cuts and reforms had a big impact on British universities. Some scientists and scholars left the UK. Teaching and research functions were rationalized and reduced. Some universities coped better by finding other sources of income.



In 1986, the scientific community in the UK set up a lobby group called Save British Science that has remained active to this day. More recently Luke Georghiou, Director of the Centre for Policy Research in Engineering, Science and Technology at Manchester University, and his team did a survey of research equipment in British universities. They found that about 80 percent of university departments were unable to perform critical experiments because they just didn't have the necessary equipment. They also found that there has been a global trend to sophistication of research equipment. If you replaced a piece of equipment that was too old with a similar one you were no longer able to maintain research at the level of most people working in your field around the world. In order to buy an enhanced piece of equipment that would put you in league with most of your peers, you needed 60 percent more money. If you wanted to be at the leading edge in your research internationally you actually needed 170 percent more money. This meant that if you had flat funding, you were gradually losing your capacity to remain competitive. And maybe not just gradually, but rapidly. It depends on what field of research and at what point in time. (Australian Broadcasting Commission, *Ockham's Razor* program (1998), Mr. Satis Arnold).

In 1998/99 the British government released its white paper (policy document) on how science can enhance economic competitiveness (*Nature*, 396: 714-715, 1998). The emphasis was placed on exploiting the potential of "knowledge industries" and relying on science to create wealth. The proposal contains money for a national venture capital fund, an annual Higher Education Reach Out fund to reward universities that work with businesses, and money for programs encouraging academics to work with industry. Overall, British science and technology was given a boost with an extra 1.1 billion pounds to be spent over three years, and this came on top of the 1.34 billion pounds science budget for 1999-2002. This is a great turn around in the fortunes of science support and could enhance many different fields.

**In Japan in 1999:** Before the second World War, Japan appreciated the benefits of basic science. However, as a result of the War, Japanese industry was almost totally destroyed and Japan had to learn how to transplant and implement advanced technologies. Applied science became the priority and helped to develop Japanese methods of mass production. This meant that basic science lost out. Now Japan has to develop its own technologies and sciences and promote its own originality ( A. Arima, *Nurturing Creativity in Research*, edit. C. B. Osmond, Published RSBS, 1996). Professor Arima, a great advocate for basic research in Japan, helped draft the 1996, Basic Law for Science and Technology, which was passed in parliament and was designed to increase Japan's spending on science by 50% by 2001 (*Nature*, 397: 188, 21st January, 1999). As a consequence, even though Japan is still officially in recession, "a generous 8.1% boost in expenditure on science, with a strong emphasis on basic research," has been included in Japan's most recent budget for the 1999 fiscal year (*Nature*, 7th January, 1999).

**In France in 1999:** The French science minister Claude Allegre has recently proposed a plan to reform the country's research system. He wishes to transfer much of the responsibilities for the work of the Centre National de la Recherche Scientifique (CNRS) laboratories to the universities (*Nature*, 396: 603 and 607, 1998). This proposal was made without direct consultation with representatives of the scientific community and would appear to dismantle Europe's largest fundamental research agency and effectively end its involvement in formulating research policy.

Needless to say, both university and CNRS researchers are hostile to these "reforms" (*Nature*, 397: 101, 1999). This "top down" decision, apparently wishes to use the infrastructure of the CNRS to re-equip and bolster the French universities. Perhaps the minister hopes to save money and use the savings in incentive schemes to encourage academics and CNRS researchers to work more with industry, thus redirecting French science into more applied areas? Some people think that this is science policy on the run by a meddling government

minister and wonder which of the other French research organizations will be next for "remolding," (Postscript: *Nature* 397: 187, 21st January, 1999). Minister Claude Allegre announced last week a new package of measures in a "bill" on "innovation and research" designed to simulate innovation and the greater ease of enabling French scientists to set up their own companies!

**In Australia in 1999:** The situation in Australia after ten years of heavy reform of the university system has parallels with the UK experience. Australian universities have been forced to reduce numbers of administrative and academic staff, cut courses and functions to cope with reductions in funding, and are finding it difficult to keep their best researchers in Australia. Even the universities with significant other sources of income are finding it difficult to manage the funding cuts and maintain quality and competitiveness in teaching and research.

A survey in 1993 by a Boston Consulting Group showed that Australian university research equipment and facilities were coming under increasing pressure. It was estimated that Australia generated about 2% of the world's scientific knowledge. However, there has been a steady decline in the research contribution of Australian science over the last ten years. Resources have been concentrated increasingly into predictable short-term research. A recent funding report "for the 1999-2001 triennium shows government funding will be cut by \$400 million to the year 2001, with direct university revenue dropping to \$3.9 billion a year. This reduction will further, seriously, undermine the quality of university teaching and research" (*Canberra Times* 21 January, 1999).

In 1946, the then Federal government established the ANU as a national research university. In 52 years, the ANU has obtained 2 Nobel prizes, 1 Japan prize, 3 Australia prizes and a host of other medals, and fellowships as well as representation on different society boards, science advisory positions to international societies, presidencies of scholastic societies, and other international recognition for the quality of its staff and scholarship. Currently the Department of Education, Training and Youth Affairs (DETYA) of the minister, Dr. David Kemp, has circulated a draft report on research policy to selected vice-chancellors. The gossip about this document implied that:

...the gist was that the bulk of the funds for the ANU's research-based Institute of Advanced Studies (it receives \$104 million annually) was to be rolled into a new system of block grants, replacing all the current Australian Research Council schemes. The universities would then compete for the block grants ... the ANU could face devastation and its research capacity would be effectively dismantled (V. Burgess, *Canberra Times December*, 4th 1998).

This is apparently another case of a meddling government minister and institutional remolding. What does the above tell us? Science policy is fast losing its sense about the public good, has fallen prey to industrial and trade theorists, has stopped being about science and is now principally about economic growth, job creation and national industrial development (*Nature*, 374:209-210, 1995). Perhaps some useful thoughts to close with come from Professor Akito Arima,

...do not be tempted to imitate Japan. These days, many European countries and the USA try to emphasize applied science over basic science. This is dangerous. Because Japan has for so long put the emphasis on applied science, now we have to develop our own concepts; our own engineering, for example. Although we very much enjoy applied science and we have very good industries now, we understand that it is time to develop Japan's own originality. I tell my colleagues that they should go back to the pre-war traditions (Professor Akito Arima, *Nurturing Creativity in Research*, edit. C. B. Osmond, Published RSBS, 1996).

Postscript: *Nature* 397: 187, 21st January, 1999: In late 1998 Professor Akito Arima resigned his job, was elected to the upper house of the Diet on LDP's proportional representation list and was two weeks later appointed education minister in Obuchi's new cabinet. He has just now been given an additional post as director-general of the Science and Technology Agency (STA) of Japan.

My best wishes for 1999



Barry Rolfe

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**SIDE NOTE**

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### Goodbye to a Valued Research Animal

Science is not only work of man. With sadness researchers, family and friends recently bid a final farewell to white Rabbit 439, whose 10th birthday was celebrated in May 1998. With his anti-pea lectin antibodies, Rabbit 439 contributed to about 5 PhD Theses and to more than 12 scientific publications. He was well known to many local and international colleagues in the field. Most of all, he gave much joy to the Kijne family in Leiden, The Netherlands.

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**July 17-21, 1999. International Symposium for Plant Peroxidases**, Columbus, Ohio USA. For registration and Information see: <http://www.hcs.ohio-state.edu/pod/pod.htm>  
Or contact: L. Mark Lagrimini, Assoc. Professor, Dept. of Horticulture and Crop Science, 2001 Fyffe Court, Columbus, OH 43210-1096, Phone: +1-614-292-3851, FAX: +1-614-292-3505, e-mail: [lagrimini.1@osu.edu](mailto:lagrimini.1@osu.edu)



**July 20-23, 1999. The Thirteenth John Innes Symposium**, The John Innes Centre, Norwich, Norfolk, UK. Contact: Symposium Secretary, John Innes Centre, Norwich Research Park, Colney, Norwich, Norfolk, NR4 7UH, UK. Phone: +1+44-(0)1603-452571, FAX: +1+44-(0)1603-456844, e-mail: [Jennifer.Fox@bbsrc.ac.uk](mailto:Jennifer.Fox@bbsrc.ac.uk), Website: [www.jic.bbsrc.ac.uk/events/symp-99](http://www.jic.bbsrc.ac.uk/events/symp-99).

**July 25-30, 1999, 9th IS-MPMI Congress**, Amsterdam, The Netherlands. Contact: Eurocongres, J. van Goyenkade 11, 1075 HP Amsterdam, The Netherlands, Phone: +31 (0)20 679 34 11, FAX: +31 (0)20673 73 06, e-mail: [eurocongress@RAI.NL](mailto:eurocongress@RAI.NL).

**August 1-7, 1999, XVI International Botanical Congress**, St. Louis, Missouri U.S.A. Contact: XVI IBC Secretariat Office, Post Office Box 299, St. Louis, Missouri, 63166-0299 USA, FAX: +1-314-577-9589, Website: [www.ibc99.org](http://www.ibc99.org).

**August 7-11, 1999, 1999 APS/CPS Annual Meeting (joint with Canadian Phytopathological Society)**, Montréal, Quebec, Canada. Contact: American Phytopathological Society, 3340 Pilot Knob Road, St. Paul, MN 55121-2097 FAX: +1.651.454.0766, e-mail: [aps@scisoc.org](mailto:aps@scisoc.org), Website: [www.scisoc.org/top.html](http://www.scisoc.org/top.html).

**June 9-11, 1999, AgBiotech World Forum**, Las Vegas, Nevada U.S.A. Contact: Customer Service IBC USA Conferences Inc., 225 Turnpike Road, Southborough, MA 01772-1749 USA. Phone: +1 (508) 481 6400, FAX: +1 (508) 481 7911, Website: [www.ibcusa.com/2313](http://www.ibcusa.com/2313)

### U.S. Department of Agriculture Website Includes Information on Events in Plant Sciences

A website created by the National Agricultural Library as a component of the Agriculture Network Information Center (AgNIC) covers major national and international events (1,500 plus) with emphasis on those of scientific significance. It includes all subject areas and has special-focus sections for Animal Sciences, Food and Nutrition, Forestry, Natural Resources, Plant Sciences, and Soil Sciences. It also links to 200 calendars maintained by others, organized by broad subject category. You can find the Agricultural Conferences, Meetings, Seminars Calendar site at: [www.agnic.org/mtg](http://www.agnic.org/mtg).

## IS-MPMI CONGRESS UPDATE

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### 9TH INTERNATIONAL CONGRESS ON MOLECULAR PLANT-MICROBE INTERACTIONS (Amsterdam July 25-30, 1999)

The congress is organized under the auspices of the International Society of Molecular Plant-Microbe Interactions. The local organization committee consists of Pierre de Wit (Chairman), Ton Bisseling (secretary) and Willem Stiekema (treasurer).

Most of the leading scientists, active in molecular plant-microbe interaction research have agreed to come and present their most recent data. The session titles and a list of scientists who have accepted to come to Amsterdam is given below. Presentations will be plenary, and during four afternoons there will be two blocks of parallel sessions. In addition to oral presentations, ample time for posters is scheduled. Twenty promising young scientists will be selected as speakers from the submitted abstracts.

The congress will take place in the RAI International Exhibition and Congress Centre, which is located within the city of Amsterdam and has efficient public transport to the city centre, good parking facilities, direct motorway access and a direct rail connection to Amsterdam International Airport (Schiphol).

Second announcements with more information about registration and abstract submission can be obtained from the Congress Secretariat. Information is also available from our website.

Congress Secretariat: Eurocongres, Jan van Goyenkade 11, 1075 HP Amsterdam, The Netherlands. Phone: +31 (0)20 679 3411, FAX: +31 (0)20 673 7306, e-mail: [IS-MPMI@eurocongres.com](mailto:IS-MPMI@eurocongres.com), Website: [mpmi-amsterdam.mb.wau.nl](http://mpmi-amsterdam.mb.wau.nl).

#### Session Titles:

- Plant disease resistance genes; structure and function
- Signal transduction in plant development and plant defence
- Developmental biology of plant-microbe interactions
- Perception of microbial signals
- Signal perception and transduction in plant defence
- Cell biology of plant-microbe interactions
- Local and systemic resistance
- Virulence and avirulence of bacteria and fungi
- Secretion and transport of virulence and avirulence factors
- Programmed cell death
- Functional genomics
- Plant-virus interactions
- Plant-Agrobacterium interactions
- Genetics of plant-Rhizobium interactions
- Plant-bacterium interactions
- Plant-pathogenic fungus interactions
- Mycorrhizae
- Plant-nematode interactions
- Plant-insect interactions
- Biological control
- Plant-microbe interactions and plant biotechnology
- Upcoming model systems in plant-microbe interactions

Invited speakers who have accepted to come are: Barbara Baker, Jaap Bakker, David Barker, David Baulcombe, Roger Beachy, Thomas Boller, Ulla Bonas, Christian Boucher, Steven Briggs, Willem Broekaert, Jim Carrington, Steven Clark, Alan Collmer, Doug Cook, Jeff Dangl, Michael

Djordjovic, Xinnian Dong, Alan Downie, Peter Dodds, Joe Ecker, Henk Franssen, Stanton Gelvin, Godelieve Gheysen, David Gilchrist, Koen Goethals, Jo Handelsman, Maria Harrison, Michele Heath, Paul Hooykaas, Roger Innes, Juri Johal, Jonathan Jones, Matthieu Joosten, Regine Kahman, Noel Keen, Dan Klessig, Eva Kondorosi, Chris Lamb, James Ligon, Sharon Long, Ben Lugtenberg, John Mansfield, Francis Martin, Greg Martin, Esperanza Martinez-Romero, Richard Michelmore, Donald Nuss, Anne Osbourn, Pamela Ronald, John Ryals, Dierk Scheel, Paul Schulze-Lefert, Naoto Shibuya, Shauna Sommerville, Herman Spaink, Gary Stacey, Brian Staskawicz, Willem Stiekema, Julie Stone, Maarten Stuiver, Jens Stougaard, Janet Taylor, Linda Tomashow, Jim Tumlinson, Barbara Valent, Jonathan Walton, Valerie Williamson, and John Yoder.

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