



ICSC

International Crop Science Congress • July 14-22, 1992
Iowa State Center • Ames, Iowa USA

30 November 1990

Dr. M. S. Swaminathan
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Address reply to:
Dr. Kenneth J. Frey, Chair
Organizing Committee
Department of Agronomy
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Dear Dr. Swaminathan:

On behalf of the Organizing Committee for the First International Crop Science Congress (ICSC), I have the great pleasure of inviting you to be an Honorary Governor of the Congress. ICSC is being co-organized and co-hosted by the Crop Science Society of America and Iowa State University, and it will be held during 14-22 July 1992 at the Iowa State Center on the campus in Ames. It is intended that ICSC will be a continuing event with future Congresses to be held at four- to five-year intervals at various sites around the world. Additional information about ICSC is provided in the enclosed materials.

Dr. Swaminathan, your immense stature in the international agricultural research and scholar community makes you eminently deserving of this honor. This title, although honorary in nature, will permit us to draw upon your vast knowledge to insure that the Congress is truly an international event that provides a forum for discussing critical global issues of crop science. In addition, we would like to discuss with you the various possibilities for your participation on the Congress program.

Dr. Swaminathan, all of us who are responsible for organizing the ICSC sincerely hope you will join us. We will appreciate an early reply.

Sincerely,

Kenneth J. Frey, Chair
International Crop Science Congress
C. F. Curtiss Distinguished
Professor in Agriculture

KJF/df/11-30-90

Enclosures: Preamble
Tentative Program
Committee List

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January 29, 1991

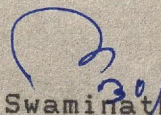
Dear Prof. Frey,

I thank you very much for your kind letter of 30th November which has just reached me today after being re-directed from Mexico. I thank you for giving me the honour of being invited to be an Honorary Governor of the Congress. I shall be very happy to do so.

With the thoroughness with which you are preparing for the conference, I am confident that you will have a meaningful and memorable congress.

With warm regards

Yours Sincerely


M.S. Swaminathan

Prof. Kenneth J. Frey
Chair, Organising Committee
International Crop Science Congress
Department of Agronomy
Iowa State University
Ames, IA 50011
U.S.A.

July 1992 engagement
file

INTERNATIONAL CROP SCIENCE CONGRESS

Preamble

The discipline of crop science provides the foundation and knowledge base for many of the technologies that have resulted in a 2.5 to 3.0% annual increase in the world's production of food, feed, and fiber over the past three decades. Crop varieties that are responsive to soil amendments, tolerant of biotic and abiotic stresses, and have good food or industrial quality is one such technology developed by crop science. A second example is fitting crop phenology to climate patterns so as to optimize growing conditions for specific crop stages, or to permit two or three crop harvests per year where only one or two were possible before. A third is integrated field husbandry that optimizes utilization of resource input for crop production. And a fourth is the development of new crops to diversify land use and to satisfy new or replacement markets.

Application of crop production technologies, for all their benefit to humankind, also have created new problems. Intensive cropping has led to excessive soil erosion in certain landscapes; monocultures have led to imbalances between host and pest, resulting in disease and insect epidemics; and abundant use of fertilizers and chemical pesticides has rendered ground water unpotable in some instances. In addition to these disturbances of the environment, the rapid addition of CO₂ and other gasses to the atmosphere and the deforestation of much native land has led to the "greenhouse effect" and pending global climate change. With these situations one is forced to ask Can crop production continue to increase with the environmental problems that are upon us or predictably imminent in the near future?

Fortunately, in addition to our research capabilities of today, new research techniques of molecular biology promise to provide basic knowledge about plant growth and its regulation that may accelerate the development of crop technology by an order of magnitude. Engineering technologies that utilize electronics and microcomputers will provide the mechanism for managing crop husbandry with infinite detail.

However, the new science, new knowledge, and new technology, with the high degrees of specialization and expertise they require and develop, will require a systems approach to minimize adding to problems of crop production and environmental contamination. A greater degree of interaction among scientists and much more integration of knowledge will be required — Yes, a "systems approach" to interaction among crop scientists is called for.

Therefore, the First International Crop Science Congress (ICSC) is being organized to provide a forum for crop scientists from around the world to exchange knowledge and to interact, for integration of knowledge from crop science and ancillary research areas, and for the development of cooperative scientific and research thrusts on regional and global bases.

Mission

The International Crop Science Congress will provide a forum for crop scientists from around the world —

- (a) to present and discuss the most recent research results,
- (b) to evaluate, discuss, and propose future thrusts for research,
- (c) to examine future scientific and education needs, and directions of crop-based agriculture,
- (d) to integrate and apply knowledge from crop science to such issues as biodiversity, sustainability of agriculture, global climate change, and the physiology and genetics of crop adaptation and productivity,
- (e) to initiate and nurture scientific partnerships, and
- (f) to contribute to a comprehensive, written compendium on crop science.

Hosting

The Crop Science Society of America and Iowa State University are co-organizing the First International Crop Science Congress. The Congress will be held in the Iowa State Center, Iowa State University, Ames, Iowa during 14-22 July 1992. The Organizing Committee (Core Group) for the ICSC is composed of Kenneth Frey (ch), Donald Duvick, Richard Shibles, John Pesek, Robert Barnes, Jerry Nelson, Ron Cantrell, and Donald Gustofson.

Audience

The International Crop Science Congress is being organized so as —

- (a) to bring knowledge and information pertinent to crop scientists from all regions of the world,
- (b) to emphasize integration of knowledge from crop science to solving problems peculiar to global and regional issues, and
- (c) to focus on global research needs.

Emphasis is being placed on having participation by crop scientists from developing countries and International Agricultural Research Centers.

The anticipated attendance will be more than 1,000 scientists, and the organizers must be ready for attendance up to 2,000. Requests for second and third announcements about ICSC now number nearly 4,000.

Program

Much of the knowledge and information provided at the Congress will, of necessity, represent research findings from national, regional, and sometimes, esoteric studies because research is multidimensional. However, the program will be organized so as to bring such knowledge to bear on broad regional and global issues and problems. The primary areas of knowledge brought to the Congress will be genetic resources, crop breeding and genetic engineering, crop physiology and ecology, crop quality and utilization, and plant molecular biology. This information will be brought to bear on the issues of sustainable agriculture; crop production in a changing global climate;

biodiversity; the physiology and genetic regulation of crop yield; adaptation and quality; yield potential; crop modelling; cropping systems; integrated pest management; and environmental quality.

The Congress is being organized with plenary sessions and concurrent symposia with invited speakers and poster sessions for voluntary papers. A unique feature of the Congress will be the final day when specially organized groups will report on crop research imperatives for the next decade. Both private and public sector crop scientists will attend the Congress, thus fostering consideration of the total global effort in crop science.

Scientific, intellectual, and extracurricular tours will be provided during the Congress to give participants an opportunity to learn more about the USA, US agriculture at the farm level, and the US agricultural industry. The Congress will have opening and closing ceremonies, a Congress banquet, and social events and performances.

Venue

The International Crop Science Congress will be held during 14-22 July 1992. It will last nine days with Saturday and Sunday being used for professional, scientific, and agricultural tours, relaxation, and informal interaction. Arrival, registration and an opening ceremony will occupy the first day (Tuesday); plenary, symposia, and poster sessions will be held on Wednesday through Friday of the first week and Monday and Tuesday of the second week. The second Wednesday will be devoted to presentation of committee reports on research imperatives, a social closing ceremony, and departure of participants.

Committees

The committees for the International Crop Science Congress are —

1. Core Group — Kenneth Frey (ch), 8 members
2. Program Committee — Richard Shibbles (ch), 60 members
3. Funding Committee — Donald Duvick (ch), 20 members
4. Local Arrangements Committee — John Pesek (ch), 30 members
5. Organization, Operations, and Policy Committee for Continuing Congress
Jerry Nelson (ch), 17 members

Budget
(2000 participants)

EXPENSES

Speakers (100 @ \$2000)	200,000
Administration — registration, housing, paper work	40,000
Social events —	
Barbecue	15,000
Opening ceremonies	10,000
Closing ceremonies	5,000
Banquet	30,000
Coffee, etc.	7,500
Spouses program	10,000
Facilities (rental)	30,000
Printing (programs, fliers, forms)	20,000
Transportation (airport and local)	20,000
Proceedings	60,000
Contingency	50,000
Overhead	<u>60,000</u>
TOTAL	\$557,000

INCOME

Registration fees	200,000
Iowa State University	37,000
Agronomic Science Foundation	20,000
Gifts and grants	<u>300,000</u>
TOTAL	\$557,000

Proceedings

The plenary and symposia papers presented at the International Crop Science Congress, mini papers from poster presentations, and the Crop Research Imperatives will be published in a book by the Crop Science Society of America. A copy of the proceedings will be provided to each Congress registrant and additional copies will be offered for sale.



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TENTATIVE PROGRAM

PROGRAM I

STRIVING FOR A PRODUCTIVE AND SUSTAINABLE AGRICULTURE

Plenary. Crop Production Needs in a Changing World

Past trends in crop yields and hectareage in different agroclimatic zones and economic environments. Population change and perceived future needs for food, feed, and fiber: Potential changes in crop production zones in response to economic development and climate change. Implications for international trade, an enhanced food supply, social stability.

Symposium A. Management Systems I. Sustaining the Soil Resource

Practices that diminish soil losses and minimize soil degradation while maintaining high yields: Residue management, rotations, etc.

Symposium B. Management Systems II. Improving Water Quality and Use

Practices that improve water-use efficiency, and enhance water quality.

Symposium C. Management Systems III. Crop Protection

Integrated strategies that minimize environmental impacts: Economic threshold indices, cultural practices, precision placement of chemicals. Managing parasitic weeds.

Symposium D. Tactical Farming: Management Under Uncertainty

Farming Systems: Mixed (animal and crop) systems; low input systems, multiple cropping, risk assessment and management. Improving resource use efficiency.

Symposium E. Realized and Potential Contributions through Plant Breeding

(Coincident with Program IV-B)

PROGRAM II

ENVIRONMENTAL CHANGE: CHALLENGES FOR AGRONOMISTS

Plenary. Projected Global Climatic Changes. Uncertainties.

Predicting rate and magnitude of change and its significance. Dimensions of the problem.

Symposium A. Implications of Global Change on Crop Ecosystems

Weed crop competition. Insects and diseases. Interactions among stressors. Abiotic stresses.

Symposium B. Adaptability of Crops to Change

Responses to past changes. Genetic flexibility for change. What do controlled climate studies reveal? Extending crops beyond traditional ranges of adaptability. Use of models to predict fitness.

Symposium C. Physiological Response to Environment I. The Atmosphere

(Coincident with Program V-A)

Symposium D. Crop Breeding for Stress Environments

(Coincident with Program IV-A)

PROGRAM III

BIODIVERSITY

Plenary. From Nature to Crop Production

Symposium A. Conservation and Exploitation of Plant Genetic Resources

Advances in germplasm collection, preservation and use. Need for global cooperation. Potential. Problems to be overcome in use of wild relatives and other wild flora.

Symposium B. New and Nontraditional Crops

Potential of alternative species for industrial, medicinal, etc. use.

Symposium C. Plant Intellectual Property Rights

Problems in information/technology exchange.

PROGRAM IV

CROP IMPROVEMENT BEYOND THE 1990s

Plenary. Integrating Plant Breeding and Molecular Biology: Accomplishments and Future Promise

Symposium A. Crop Breeding for Stress Environments

Breeding for elevated carbon dioxide, moisture stress, cold, heat, acid soils, salinity, weed competitiveness, UV-B, and ozone: Methods and potential.

Symposium B. Realized and Potential Contributions to Sustainable Agriculture through Plant Breeding

Breeding for nitrogen-use efficiency, water-use efficiency, pest resistance, tolerance to soil acidity, multiple cropping systems, etc.

Symposium C. Use of Physiological Attributes in Plant Breeding

Photosynthesis, respiration, root growth, nitrogen mobilization, etc.

Symposium D. Novel Methodology in Plant Breeding

Utility of apoximis in grain crops. Reemergence of mutation breeding. Plant genome mapping and use of RFLPs. Somatic hybridization. Genetic engineering.

Symposium E. Strategies for Improving Crop Quality--The Next Challenge?

Seed oil, starch and protein content and quality. Forage quality. Medicinals and industrials. Antinutritional factors.

PROGRAM V

ADVANCES IN PHYSIOLOGY AND MOLECULAR BIOLOGY OF CROP PLANTS

Plenary. Integration of Physiological and Molecular Information

Understanding the regulation of crop growth, and development through molecular biology.

Symposium A. Physiological Response to Environment I. The Atmosphere

Response to elevated carbon dioxide: Dinitrogen-fixation, N and C balance and partitioning. Heat and cold stresses. Response to UV-B and ozone.

Symposium B. Physiological Response to Environment II. The Soil

Oxygen deprivation: Flooding, and soil compaction effects on root growth, hormone balance, nitrogen fixation, etc. Salinity stress. Response to moisture deficit: Osmoregulation, rooting patterns.

Symposium C. Physiological Response to Environment III. The Biota

Crop responses to weeds, parasites, insects, pathogens, grazing.

Symposium D. Regulation of Yield Processes.

Nitrogen fixation. Respiration. Photosynthesis. Sink development. Senescence.