

Herman C. Kilpper
Executive Director
The World Food Prize Foundation

THE WORLD FOOD PRIZE

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515-245-2411 / FAX: 515-245-3785 / Email: wfp@netins.net
Web page: <http://www.netins.net/showcase/wfp>



Introducing

THE WORLD FOOD PRIZE
WORLD WIDE WEB PAGE

<http://www.netins.net/showcase/wfp>

Find information about the history of The Prize,
nomination procedures,
and information on our past laureates.

Email: wfp@netins.net

THE WORLD FOOD PRIZE

John Ruan

The World Food Prize Foundation / 601 Locust St. / Suite 350
Des Moines, Iowa 50309 USA

Dr. M.S. Swaminathan
M.S. Swaminathan Research Foundation
3rd Cross Street
Taramani Institutional Area
Madras -- 600 113
INDIA

THE WORLD FOOD PRIZE

November 27, 1995

Dr. M.S. Swaminathan
M.S. Swaminathan Research Foundation
14, Second Main Road
Madras 600 085,
INDIA



Dear Dr. Swaminathan:

Last October the World Food Prize Foundation announced to the international media the selection of Dr. Hans R. Herren, scientific leader of the biological control of cassava mealybug, as the 1995 World Food Prize laureate. Dr. Herren, a Swiss born entomologist, has worked in Africa since 1979. He was recognized for his leadership role in the development and implementation of the biological control project for the cassava mealybug which had nearly destroyed the entire Africa cassava crop. This achievement stabilized the production of cassava, which is the basic food staple of 200 million people and the great famine reserve for the poor.

In 1993 your institution nominated Malik Khuda Badhsh Bucha for the World Food Prize. Nominations are valid for three years and, as you know, we requested only a brief resubmission note for each succeeding year. A new, formal nomination is now required if your institution wishes continued consideration (for 1996, 1997, and 1998) of the candidate by the Selection Committee. Enclosed is information on nomination procedures and format.

If originally you submitted books or other extensive documentation that does not require update and which you would like to keep in your candidate's file, please let us know and we will transfer this material into the new file, rather than require duplication of your efforts. The Selection Committee asked that all nominations include a statement that clearly defines the impact and the sustainability of the nominee's contribution to the quality, quantity and availability of food. We also welcome new or additional nominations. Please note in the 1996 Invitation to Nominate that the application deadline is March 15, 1996.

Should you have any questions, please feel free to contact our office at any time. We will be glad to assist you. In the case you are no longer associated with the nominating institution, may we ask that you pass this letter along to the appropriate person? Thank you very much for your time, effort and interest in the World Food Prize and its goal.

Sincerely,

David G. Topel
Secretariat

Enclosures



THE WORLD FOOD PRIZE

1996

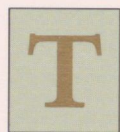
Invitation to Nominate



THE WORLD FOOD PRIZE

Invitation to Nominate

INVITATION
TO NOMINATE



he World Food Prize is the highest individual honor for outstanding achievement in improving the world's food supply.

Each year, more than 3,500 institutions and organizations around the world are invited to nominate candidates for the prize.

We are pleased to include you in this group.

If you know of someone whose work has measurably influenced the quality, quantity, or availability of food in the world, please let us know. This booklet explains how to submit a nomination.

John Ruan
Chairman
Council of Advisors

Norman E. Borlaug
Chairman
Selection Committee

A PRIZE FOR THE WORLD

The World Food Prize is the foremost international award recognizing outstanding individual achievement in improving the quality, quantity, or availability of food in the world.

The prize emphasizes the importance of a nutritious and sustainable food supply for all people. The prize program recognizes that improving the world's food supply for the long term depends on nurturing the quality of land, water, forests, and other natural resources. By honoring those who have worked successfully toward this goal, The World Food Prize calls attention to what has been done to improve the world food supply and to what can be accomplished in the future.

The prize recognizes achievements in any field involved in the world food supply, including food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, and social sciences, and other related fields that have brought food to the tables of a significant number of people in the world.

The laureate receives \$200,000 and a sculpture created by world-renowned designer Saul Bass. The award is based solely on individual achievement with no consideration of nationality, ethnic origin, political persuasion, religious beliefs, sex, or age.

NEED

Norman E. Borlaug — winner of the Nobel Peace Prize for his work in world agriculture — envisioned a prize that would honor individuals who have made significant and measurable contributions to improving the world's food supply. Beyond recognizing these people for their personal accomplishments, he saw the prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was created.

LAUREATES

Since its inception, ten extraordinary individuals have been awarded The World Food Prize.

- 1995 **Dr. Hans R. Herren** provided the leadership in the development and implementation of the biological control project for the cassava mealybug which had nearly destroyed the entire Africa cassava crop. This achievement stabilized the production of cassava, which is the basic food staple of 200 million people and the great famine reserve for the poor. The success of the biological control of the cassava mealybug soon became the model for the future expansion of an approach that has proven ecologically and economically sound.
- 1994 **Dr. Muhammad Yunus**, founder of the Grameen Bank in Bangladesh, developed innovative small loan programs for the poor, providing millions of people throughout the world access to food and nutrition for the first time in their lives.
- 1993 **He Kang**, former Minister of Agriculture in China, provided the leadership that caused large increases in agricultural output in the early 1980s and made China self-sufficient in basic food for the first time in modern history.
- 1992 **Dr. Edward F. Knipling** and **Dr. Raymond C. Bushland**, a team of entomologists, developed the sterile insect technique to control insect parasites that threaten vast sources of food, especially livestock and wildlife populations.
- 1991 **Dr. Nevin S. Scrimshaw** developed the principle for low-cost, protein-rich food products to combat malnutrition in developing countries.
- 1990 **Dr. John S. Niederhauser** discovered and utilized a durable resistance to the potato late blight disease, which boosted the food supply and improved nutrition for many nations.
- 1989 **Dr. Verghese Kurien** turned the milksheds of India into cooperatives that produce, process, and market milk in the urban centers of that country.
- 1988 **Dr. Robert F. Chandler, Jr.**, guided the development and distribution of new varieties of rice with double and triple the yield potential of traditional rice.
- 1987 **Dr. M.S. Swaminathan**, architect of India's "Green Revolution," led the introduction of high-yielding wheat and rice varieties for Indian farmers.

PRIZE YEAR

The World Food Prize laureate is announced each fall, and the award is made in October during World Food Prize Week. This week is filled with special events and lectures hosted by prominent institutions.

GOVERNANCE

The World Food Prize is governed by the Board of Directors of The World Food Prize Foundation. The board is guided by a Council of Advisors in the establishment of prize policy and in the annual approval of the recommendations received from the prize selection committee.

The administration of The World Food Prize is directed by The World Food Prize Foundation from its headquarters in Des Moines, Iowa, USA.

SELECTION

The Iowa State University College of Agriculture serves as secretariat for The World Food Prize, following policies set by The World Food Prize Foundation. In research, teaching, and extension programs, the University and the College work with people and institutions from many nations to address world food issues related to human nutrition and the production, processing, and distribution of food.

The secretariat reviews all nominations for appropriateness and completeness and forwards them to the selection committee.

The selection committee is composed of nine distinguished individuals who are knowledgeable about various aspects of nutrition and food production, processing, and distribution, including research, policy development, and business management.

It reviews the nominations, selects a candidate and alternate most worthy of the award according to the prize's objectives, and forwards its recommendation to the chairman of the Council of Advisors.

Members of the selection committee remain anonymous except for the chairman, Norman E. Borlaug. The minutes of the committee's meetings and the views expressed by its members are not made public in any way.

NOMINATION PROCEDURE

Any institution or organization may submit a nomination for The World Food Prize laureate. An organization may submit as many nominations as it sees fit, and all nominations are confidential. Individuals may generate nominations if the nomination has been endorsed and submitted by an institution or organization.

The nominee must be living and must personally have made a significant, applied contribution that has increased the quality, quantity, or availability of food. Normally, the prize is awarded to one person, but it may be shared by partners in a specific activity.

To submit a nomination, please give us the following information, in the order shown, in English, French, or Spanish:

Name	Nominee's name, affiliation, address, and telephone number. Attach a recent photograph of the nominee.
Biographical Information	Date and place of birth, education, positions held (in public and private organizations), professional affiliations, honors and awards.
Personal	In one or two typed pages, describe the nominee's personal contribution to increasing the quality, quantity, or availability of food. The candidate should be nominated for one specific, measurable, and sustainable achievement that has brought food to the world's people.
Nominating Organization	Name of nominating organization, address, and telephone number. The nomination must be signed by the chief executive officer of the nominating organization, certifying the accuracy of the information. The identity of the nominating organization is kept in strict confidence.

Date	Date of nomination.
Seconding Nominations	Letters seconding the nomination from three individuals who are familiar with the nominee's work.
Supporting Documents	Documents that support your description of the nominee's personal contribution. These may include general articles about the nominee's activities and trends in the nominee's field and appropriate, significant publications by the nominee. Please send only one copy of each document.

If your nominee is not selected to be the laureate, your nomination can be reconsidered for two years. However, you must send us written confirmation each year of your wish to renominate and provide updated supporting documents.

If your nominee becomes The World Food Prize laureate, the information contained in the description of personal contribution and the supporting documents may be used to prepare news materials about the winner.

Your nomination must be postmarked by March 15, 1996, to be considered. Send your nomination to:

The World Food Prize
Office of the Secretariat
David G. Topel, Dean
College of Agriculture
Iowa State University
Ames, Iowa 50011
USA
Telephone 515-294-2518
FAX 515-294-6800

COUNCIL OF ADVISORS

JOHN RUAN

Chairman
The World Food Prize Foundation
Des Moines, Iowa, USA

NORMAN E. BORLAUG, Ph.D.

Nobel Peace Prize Laureate
President, Sasakawa Africa
Association
Former Director, Wheat —
CIMMYT
Mexico City, Mexico

THE HONORABLE

JIMMY CARTER
Chairman
The Carter Center
Atlanta, Georgia, USA

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The World Bank
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Former Head of State of Nigeria
Chairman, Africa Leadership
Forum
Ota, Ogun State, Nigeria

HERMAN C. KILPPER

Executive Director
The World Food Prize Foundation
Des Moines, Iowa, USA

The World Food Prize is sponsored by The World Food Prize Foundation, a private foundation established by The John Ruan Foundation, Des Moines, Iowa, USA.

Printed on recycled paper.

PACKET CONTENTS

World Food Prize Fact Sheet

The 1993/94/95 *World Food Prize Report*

The 1995 Laureate Brochure

1996 Invitation to Nominate

World Food Prize Youth Institute

Published proceedings from the first Institute, held October 1994 .

Brief description of the 1995 Institute which was held at 4 statewide sites using Iowa's fiber optic network. Papers from that Institute will also be published.

The *Ruan International* brochure

Business cards for the Foundation staff, Herman Kilpper/Executive Director, and Nancy Beltramo/Administrative Assistant. Staff information from the Office of the Secretariat at Iowa State University will come in their communications with you.

A card with information about the Prize site on the Worldwide Web.

Dear Dr. Swaminathan:

We have the following address, etc., information for you. Please review and let me know if there are any changes or additional information you would want us to have, such as Email. We will provide the Secretariat at Iowa State University with this information.

Dr. M.S. Swaminathan
M.S. Swaminathan Research Foundation
3rd Cross Street
Taramani Institutional Area
Madras -- 600 113
INDIA
Phone: 91-44-2351698 (office)
91-44-455339 (residence)
FAX: 91-44-2351319

Thank you.

Nancy Beltramo
Administrative Assistant

RUAN INTERNATIONAL



RUAN INTERNATIONAL

In a lifetime of change, some things remain true. I've found that good work gets good results, that people are the center of any successful operation, and that the more we put into the community in an attempt to make it better, the more we succeed in making our own lives more satisfying.

Ruan International is an extension of traditional standards of service and our ability to grow through the years into a truly global network of industries. Underlying the success of Ruan International is our strong desire to make things better not only for ourselves and our nation but for people throughout the world.

John Ruan

RUAN IN PROFILE



Founded 60 years ago, Ruan International is a diversified group of businesses active in transportation, commercial banking, financial services, international trading, and real estate development.

From the beginning, founder John Ruan based his operating philosophy on a simple work ethic that stresses the traditional values of honesty, hard work, and quality service. This work ethic, applied consistently over the years, has brought success to Ruan International and to its customers. The ethic will continue to drive the Ruan organization into the future, fulfilling a vision expressed by John Ruan.



At Ruan International, we have been fortunate. As we look ahead, we remember our beginnings. We respect our Iowa heritage and appreciate our past opportunities. Now, we accept our responsibilities for the future. The future involves a world economy. Therefore, we must recognize new opportunities in global markets and learn to cope with differences in language, economic structures, and business habits throughout the world. Our future is in serving world markets. We will apply innovative and positive approaches to our business in these markets, and, above all, give quality service to our customers. At Ruan International, we commit ourselves to a future of peaceful prosperity for ourselves and for our customers.

*John Ruan
Chairman*



THE RUAN STORY



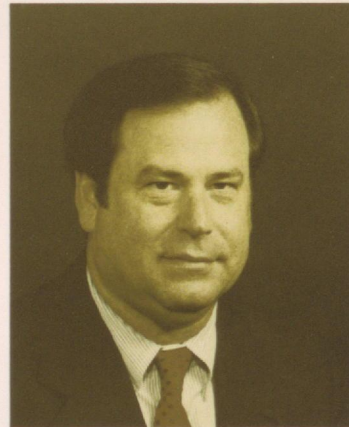
The Ruan story began in Iowa during the Great Depression. The year was 1932. John Ruan had just completed one year at Iowa State University. His father, a physician and surgeon died, leaving the family with two automobiles and little else. A classmate suggested that John trade one of the cars for a truck and haul gravel for a local road builder to earn some money during the summer. Less than a year later, John had a fleet of three units hauling coal.

"We made three round-trips a day each," Ruan recalls. "Each truck could handle seven tons, and we shoveled it on and we shoveled it off. Forty-two tons a day. I made muscles and I made money at the same time. I created three direct jobs, plus several indirect jobs at the mine, and I saved my customers 50 cents per ton over the prevailing cost. In addition, we had dividers in the truck boxes so we could deliver as little as a half-ton, if that was all the customer could afford. That was service — and we've stressed service through all our intervening years."

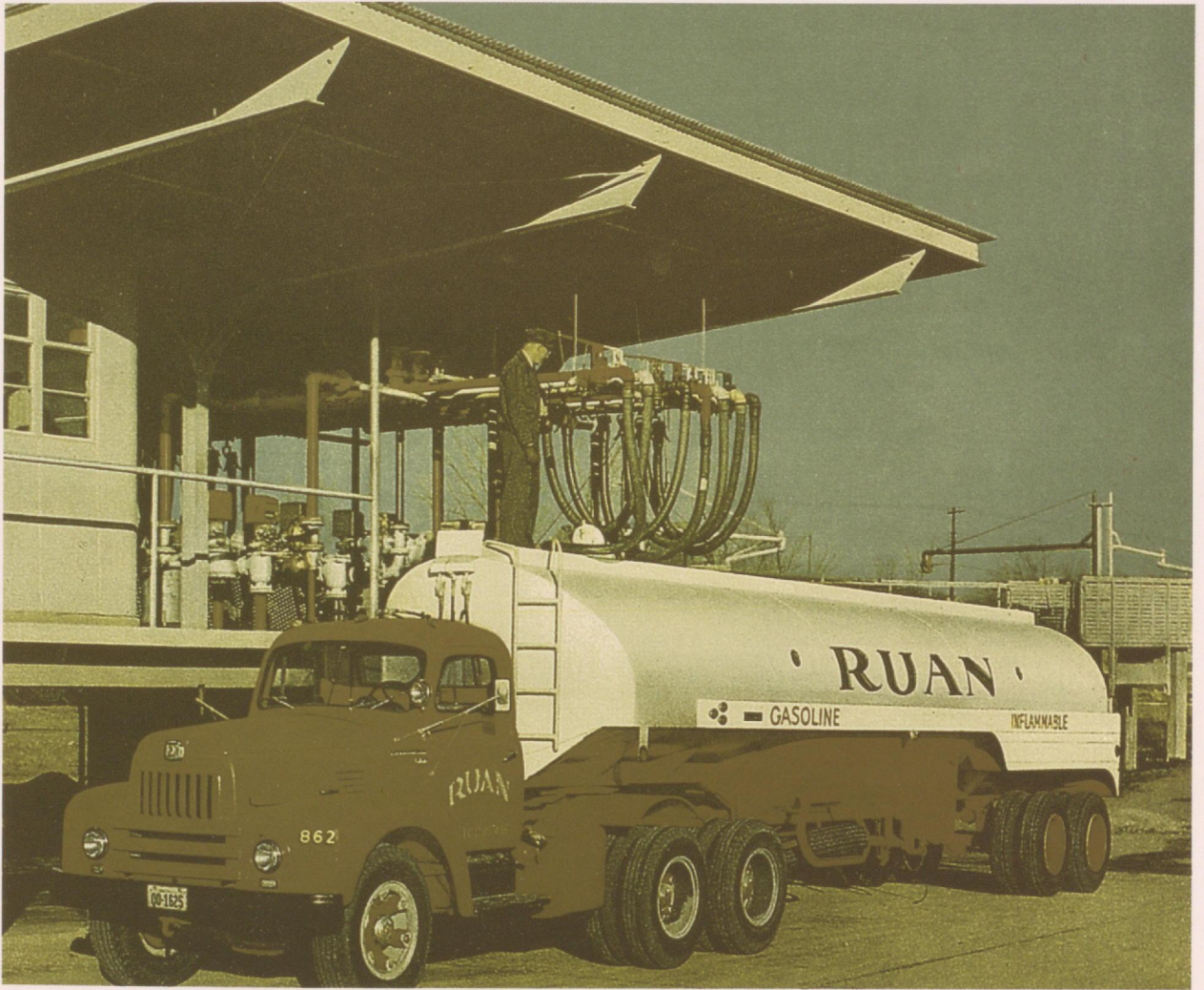
This early work ethic and dedication to customer service created the Ruan spirit — a spirit that led to the development of what is now the largest privately owned transportation company in the United States. From that base in transportation, Ruan developed a diversified business group now known as Ruan International, offering commercial banking, financial services, international trading, and real estate investment/development. Ruan International also exercises its corporate citizenship through charitable giving and vital interaction in community development.

"Management must shape organizations that can respond quickly to customers' needs. The Ruan commitment to excellence is evidenced by the continuous improvement of every service we provide."

*John Ruan III
Vice Chairman*



THE KNOX STORE



TRANSPORTATION



From Ruan International's beginnings in trucking, John Ruan emerged as one of the industry's true pioneers. His early ingenuity led to a long series of achievements in innovative transportation engineering and safety.

The culmination of these efforts came in 1981 when John Ruan invited engineers from many of America's leading transportation companies to join him in creating the MEGA Task Force. Under Ruan leadership, this quality team produced the MEGATruck — a minimum maintenance, maximum reliability over-the-road vehicle designed to run a million miles and more. The MEGATruck set a new standard of performance for all Ruan's vehicles.

Ruan's commitment to excellence in safety earned many industrial awards and provided the leadership in the development of MEGASafe, the most comprehensive, professionally-delivered safety programs ever developed for the transportation industry.

In the 1980s Ruan adopted a formal quality improvement system, transforming the operation into a diversified transportation service network and positioning the company for the challenges of the 1990s. Ruan's MEGAQuality Improvement (MQI) program, based on statistical process control, is in force company wide, involving the company's suppliers and customers alike.

"It is our mission, as a formal quality improvement organization, to continually provide our customers with better services at lower cost."

*Larry Miller
President*





COMMERCIAL BANKING



Ruan International's most significant move toward diversification came in 1964 when John Ruan acquired Bankers Trust Company, an independent bank established in 1917 with headquarters in Des Moines, Iowa.

Being both one of the largest commercial banks in Iowa and the largest independent bank in the state has placed Bankers Trust in the forefront of significant commercial growth in the state. Its long-standing support of entrepreneurs has helped to launch many of the most successful companies in Iowa.

As Bankers Trust's customers became increasingly involved with international markets, Bankers Trust identified emerging customer needs and provided products and services designed to further growth and sophistication. The international department of Bankers Trust is a specialist today in meeting needs for international financial services, responding quickly with the power to make and implement decisions.

The depth of expertise in the department provides a strong financial advisory role to customers who need help understanding the foreign financial markets, and executing transactions around the world.

With the increased emphasis on international business within the State of Iowa, Bankers Trust is committed to being a working partner in global business relationships. Responsive and committed to serving, Bankers Trust is a major force in the ever-changing context of Iowa businesses — domestic and international.



J. Michael Earley
President



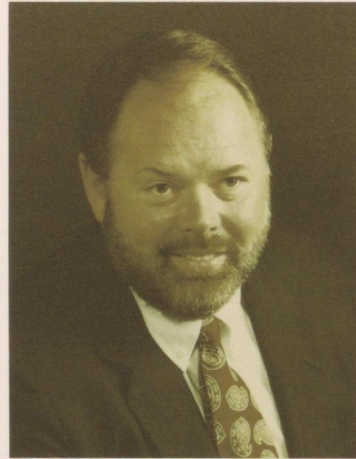
INTERNATIONAL TRADING



John Ruan continued to pursue his vision of expanding international opportunities and in 1983 formed the Iowa Export-Import Trading Company, which now conducts business in 50 countries and serves more than 1500 domestic and international customers.

The Iowa Export-Import Trading Company has long-standing relationships with companies in Italy, Austria, Germany, Korea, Japan, and China. It also has extended its overseas presence through the Ruan International membership in the World Trade Center Association, which has facilities in over 50 nations.

The trading company involves all facets of international trade. Experienced staff provide international marketing and sales assistance and handle all the financial, distribution, and insurance needs associated with exporting and importing products.



"Today's marketplace is the world, and offers new opportunities and challenges. We work as a partner with our customers to identify product strategies that will work now and provide a position for future development."

*Craig Winters
President*

INTERNATIONAL TRADING



FINANCIAL SERVICES



John Ruan anticipated a continued expansion of the financial service industry, attributable in large part to a change in governmental regulations. This vision led to a commitment by Ruan International to enter the securities business.

Ruan Securities Corporation is an independent broker/dealer specializing in public finance, municipal trading and municipal underwriting. Since January 1989, Ruan Securities has been nationally ranked as the number one underwriter of Iowa Municipal Bonds by the Bond Buyer. While this expertise continues through its underwriting and institutional sales activities, Ruan Securities Corporation is now a full-service investment firm providing a wide range of products and services.

The national headquarters for Ruan Securities is the Ruan Complex in Des Moines. The firm has a regional office in Delray Beach, Florida.

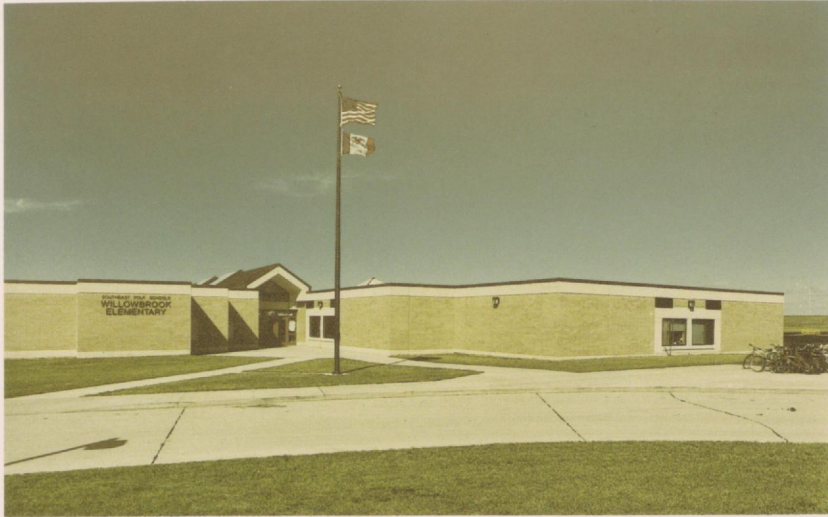
Ruan Securities Corporation is a member of the Securities Investor Protection Corporation (SIPC) and the National Association of Securities Dealers Inc. (NASD). Cash and securities transactions are cleared through Prudential Securities, Inc. All accounts are insured to \$10 million.

As Ruan International advances into global markets, the financial services division will expand and prosper with it, providing even more services to its customers.

"The infrastructure for essential services in Iowa, and the nation, was first built 30 to 50 years ago. Over the next 20 years those services will need rebuilding or replacing. This type of financing is our speciality."

*Bob Young
President*





Willowbrook Elementary School
Southeast Polk School District



Indianola City Hall



Nevada Public Library

REAL ESTATE INVESTMENT/DEVELOPMENT

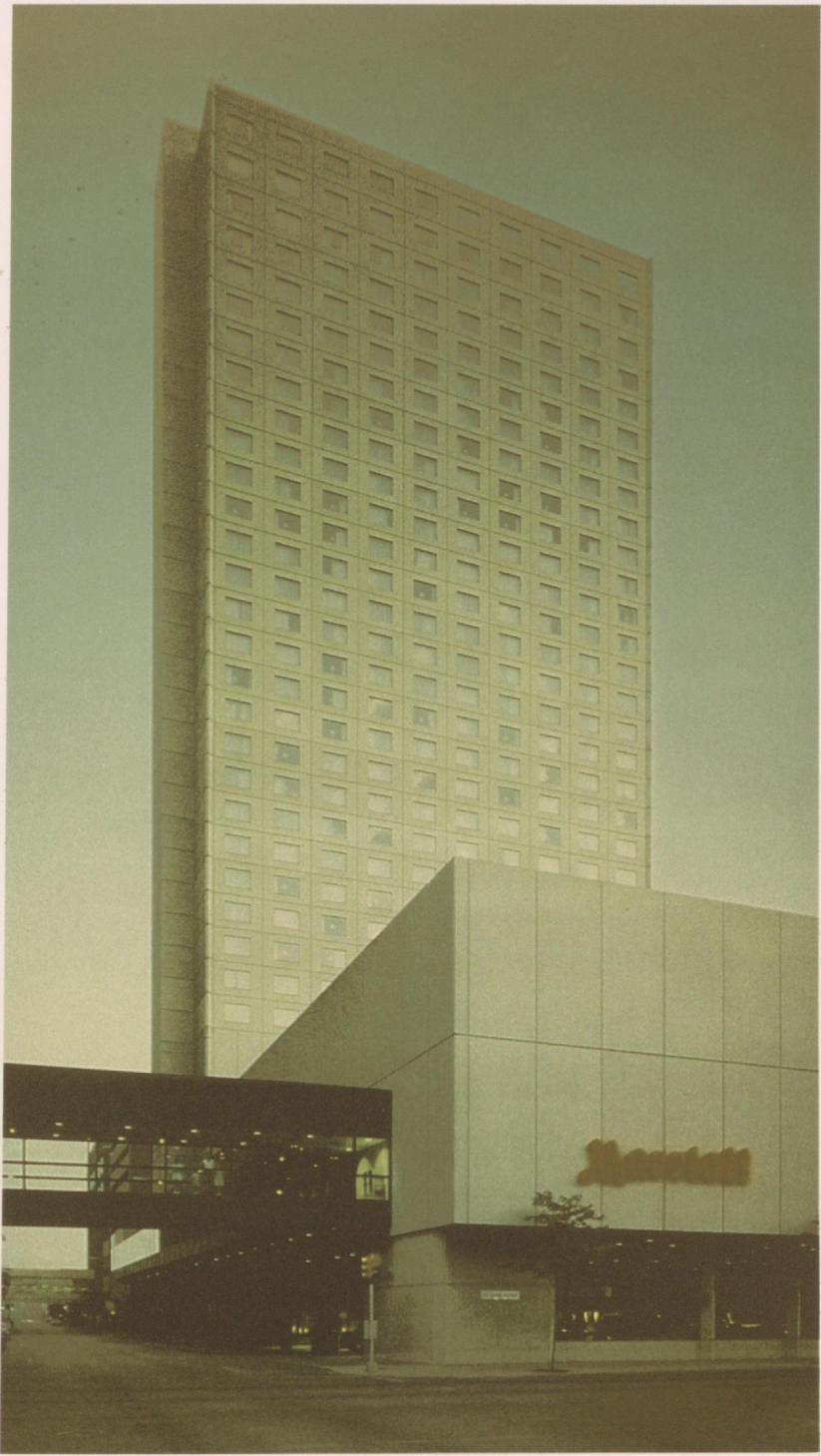


As Ruan International grew to a nationwide network of services, the need for real estate became increasingly apparent. In response to this need, John Ruan organized a real estate investment group, which soon developed a unique expertise in recognizing investment opportunities and special skills in structuring transactions to acquire and manage properties. Today, Ruan International boasts a wide array of real estate in strategic locations across the country.

Throughout Ruan International's many years of growth, John Ruan has remained loyal to Iowa and to Des Moines. This loyalty prompted him to select Des Moines as Ruan International's headquarters, a decision that sparked dynamic revitalization for downtown Des Moines. In the early seventies, as downtown Des Moines showed signs of decay, Mr. Ruan replaced several old buildings with the 36-story Ruan Center, for many years the largest office building in Iowa.

Soon after the completion of that project, John Ruan provided leadership — as a general partner with a group of local investors — in building the 34-story Marriott Hotel adjacent to the Ruan Center. Subsequently, he built an addition to the Ruan Center Complex, Two Ruan Center. Mr. Ruan also promoted the skywalk connections within this complex that were the start of an extensive skywalk network that now links almost all office buildings, public buildings, and parking facilities in downtown Des Moines.

John Ruan's personal investment and leadership led to the revitalization of downtown Des Moines, a renaissance which proved to be a positive incentive that sparked development throughout the State of Iowa.



REAL ESTATE INVESTMENT FORMS

R



This South part
of the world, comprising
almost the third part of the
Globe is yet unknowne certain
sea-coasts excepted, which
rather seeme, there is a land
then a cryed ether Land,
people, or Comodities etc

Hittacorum regis
the Country of Pir
rate, so called of 9 Ports:
gale from 9 extraordinary
and almost incredible height
as of those birds there

Mallur kingdome
is abundant
in sundry sortes
of spices.

M. Thomas
Candish

Oliverus
vander Noort

AIRE

CORPORATE DIRECTORY

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The World Food Prize
1994 Youth Institute

Inaugural Proceedings



THE WORLD
FOOD PRIZE

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For Additional Information Contact:

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Acknowledgments

The World Food Prize Foundation wishes to express its sincere appreciation to the many people and organizations that made this program possible.

We particularly congratulate the high school principals for their visionary interest in the concept of the World Food Prize Youth Institute and their willingness to commit their schools as participants in this pilot project. Special recognition is given to the faculty members and student participants for their time, thought and effort devoted to the development of papers presented to the Institute.

The personal endorsement from the Director of the Department of Education for the State of Iowa was important to our introduction of this concept of a new educational opportunity for high school students.

We applaud our laureate, Muhammad Yunus, for his personalized response to each student's paper; our moderator, Robert Havener, for his skillful leadership of the program; the several members of our Council of Advisors for their thoughtful comments in response to the papers; and to His Excellency Humayun Kabir, Ambassador of Bangladesh, for his closing remarks.

Finally, we thank Iowa State University and the Iowa Council for International Understanding who attended to the many organizational details prior to and during the Institute.

Introduction

The World Food Prize

The World Food Prize, considered to be the “Nobel Prize” for food, is awarded each October in Iowa to an outstanding individual who is designated as The World Food Prize laureate. The laureates are recognized for their contributions to human development by improving the quality, quantity, or availability of food in the world.

The Prize emphasizes the importance of a nutritious and sustainable food supply for all people. By honoring those who have worked successfully toward this goal, The World Food Prize calls attention to what can be accomplished in the future.

Dr. Norman Borlaug, a native of Cresco, Iowa, and winner of the 1970 Nobel Peace Prize for his work in world agriculture, envisioned a prize that would honor individuals who have made significant and measurable contributions to improving the world's food supply. Beyond recognizing these people for their personal accomplishments, he saw the Prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was created.

The World Food Prize is sponsored by The World Food Prize Foundation, established by John Ruan, and is located in Des Moines, Iowa.

1994 World Food Prize Laureate

Dr. Muhammad Yunus

Dr. Muhammad Yunus is the founder and managing director of the Grameen Bank in Bangladesh. His innovative programs have offered millions of the world's poorest people access to more food and better nutrition. A majority of Grameen Bank loans go to the very poor, for what are described as traditional subsistence activities.

In his native Bangladesh, and in many other underdeveloped countries where Dr. Yunus's methods have been replicated, the incidence of malnutrition has vastly decreased, and the agricultural infrastructure needed to sustain a sufficient food supply has strengthened steadily.

Dr. Yunus was presented with the World Food Prize at an award ceremony on October 13, 1994, in Des Moines, Iowa. His acceptance speech is reproduced on the pages that follow.

Dr. Muhammad Yunus Speech on Acceptance of the 1994 World Food Prize

Former President Carter, Mr. Chairman, Members of the Council, Members of the Committee, Distinguished Guests, Ladies and Gentlemen:

I have been struggling to draw national and world attention to poverty and hunger issues for many years now. But I never thought I would be considered for the immensely prestigious World Food Prize. When I received a call from the World Food Prize Foundation I could not believe what I heard. I am overwhelmed by the honour given to be by choosing me as the 1994 World Food Prize Laureate. Thank you for giving me this honour. Through your decision you have also honoured the two million poorest families in Bangladesh who have demonstrated for the world, most convincingly, that given the institutional support the poor can change their economic status and achieve their own food security; you have honoured the eleven thousand young men and women at Grameen Bank who work very hard to make a dream come true — a dream of creating a poverty-free world.

I look at the Prize not only as an endorsement of what I have done, I look at it more as a thunderous endorsement of what we can all achieve — the creation of a poverty-free world in our lifetime. I feel thrilled to discover that we share a common dream.

I am very grateful to you for making me and my co-workers feel stronger in our commitment.

The idea of Grameen Bank was conceived in the backdrop of a devastating famine — Bangladesh famine of 1974. Nearly one and a half million people died in that famine. What was I doing when hundreds of thousands of people were dying of hunger on the streets, railway stations, dirt roads, and the huts of the villages? I was teaching elegant theories of economics in a Bangladeshi university impressing upon my students that economics text-books have answers to all economic problems. I started hating myself for the arrogance of knowledge that I was inculcating in my students, while I saw the emptiness of it all in terms of its capacity to help the hungry people to hold on to their precious lives.

I became a fugitive from the formal academic life. I wanted to learn from the lives of poor people, rather than from the holy text-books and prestigious journals.

Very soon I learned that it is not the shortage of food that makes people go hungry, it is the lack of ability to buy food which made people go without food. Agricultural scientists and technological innovations have done wonders in making sure that there is enough food for everybody in this world. But social scientists could not think of ways to let everybody have access to this food. Over one billion people who live in utter poverty remain uncertain about their next meal, and the meal next. Today, for all practical purposes, food security has turned out to be a question of income security. Hunger is a symptom of poverty. If we can root out poverty, we root out the systemic cause of hunger.

Brilliant theories of economics do not find it worthwhile to spend time in discussing issues of poverty and hunger. They want you to believe that these will be resolved when the march of economic prosperity will sweep through the nations.

Economists spend all their talents in detailing out the processes of development and prosperity, but none on the processes of poverty and hunger.

I feel very strongly that if the world recognizes poverty alleviation as an important and serious agenda, we can create a world that we can be proud of, rather than feel ashamed of, as we do now.

If we are looking for one single action which will enable the poor to overcome their poverty, I would go for credit. Money is power. I have been trying to make the world accept and treat credit as a basic human right.

If we can come up with a system which allows everybody access to credit while ensuring excellent repayment — I can guarantee you poverty will not last long. Economic literature treats human beings as “labour;” all that the people can do is to sell their labour power. It is a shame that human beings are visualized as horses or work-animals. I think we have created the problem of poverty, hunger and indignities by treating people as “labour only.”

Economic theories are held in such great respect we do not think of changing this characterization of human beings to fix the problem of poverty. We only tried to make poverty tolerable by introducing unemployment and welfare benefits, and other safety-net programmes.

A human being is a very creative animal, not just a work-house. He/she is endowed with the ingenuity and creativity which no other creature can match. Every human being has a tremendous potential which most often remain unexplored because of the system we have build around us.

If only we had imagined a world where every human being is a potential entrepreneur, we would have built a system to give everybody a chance to materialize his/her potential.

Now, instead, we have created non-negotiable distances between the entrepreneur and labour. But if we allow labour access to capital this world will be very different from what we have built now. We can only build the way we imagine. In our theories we imagined the wrong way, as a result, we got ourselves a wrong world. Now reformulating our axioms the right way, we can create the right world.

In the “right” world, we’ll have to forget that people should wait around to get hired by somebody. There is a strong active element in each human being — the hunter and gatherer instinct. That’s what made us survive and flourish in our initial years on this planet. It is still a very precious element in us. But our current economic system has made us forget our own instinct. We have to instill in everybody’s mind that each person creates his or her own job, individually or collectively. We’ll have to build institutions in such a way that each person is supported and empowered to create his/her own job (self-employment). Wage employment will come into the picture only as an alternative to self-employment. The poor, women, minority groups, physically handicapped and socially handicapped persons will benefit immediately.

Take the case of Grameen system. It makes it easy for a traumatized poor “nobody” to take the leap and become an enterprising “somebody.” Two million borrowers of Grameen, mostly women, turned themselves into confident business-women. They own the bank. They borrow half a billion dollars a year in tiny loans. They build themselves respectable houses with housing loans. They send their children to school. They have saved over \$100 million in their savings accounts. They have made the world sit-up and question the age-old banking dogma which says that the poor are not creditworthy, and allows the banks to write off billions of dollars of their loans to the rich, each year, as bad debts, without blinking their eyes.

Let us admit it, poverty is not created by the poor. Poverty is created by the existing world system which denies rightful opportunities to the poor.

Let us recognize that poverty is the denial of all human rights to a person. By removing poverty not only do we remove hunger, we also ensure other human rights — right to shelter, education, health, and political freedom.

Grameen is a very exciting experience for us. With this experience we are totally convinced that poverty and hunger can be eliminated from this world once and for all. All it needs is a firm global will to achieve it. I hope the world will soon get convinced too. The World Food Prize is dedicated to creating this will. With the powerful leadership behind this Prize, it will play a significant role in influencing the world and generating a firm will.

I assure you, Mr. Chairman, ladies and gentlemen, in my own capacity, I'll work harder to bring the day closer when this planet will be free from hunger and poverty.

With gratitude and humility I accept the honour you have bestowed upon me.

Thank you very much.

The World Food Prize Youth Institute

The World Food Prize Youth Institute has been introduced by The World Food Prize Foundation to increase the awareness of The World Food Prize among Iowa youth. The Institute provides an educational opportunity for Iowa youth to interact with The World Food Prize laureate and other world leaders on critical issues relating to food security throughout the world. The Institute is further designed to attract and motivate dedicated young Iowans to consider careers in food, agriculture and natural resource disciplines.

Fourteen high schools were invited to attend the first World Food Prize Youth Institute. The schools were selected to provide representation from a cross-section of large and small schools throughout Iowa.

Each school designated one student and one faculty member to attend the Institute. This team was responsible for the preparation of a discussion paper for presentation at the Institute. The development of the papers became a project of a single student, a group of students or an entire class. The faculty member served as an advisor to the project.

The papers were to address the following issues:

Section I: The World Food Prize

- Why is a World Food Prize important?
- Why is the World Food Prize particularly significant to Iowa?
- What can be done to make the Prize more visible, and more recognizable in Iowa?

Section II: Food Security in Third World Developing Countries

Much attention is given to the growth in world population. The most significant population growth is expected in Third World developing countries which will greatly increase the problems of hunger, malnutrition and disease in those areas of the world. But even now, given the current level of population in developing countries, the problem of food security for millions of people is already a major concern.

- What does it mean to be "food secure"?
- What can be done to improve food security in developing countries?
- What should Iowa's role be?

The papers were submitted to the World Food Prize Foundation in advance of the Institute, on a non-competitive basis.

The Institute was convened on Friday, October 14, 1994, at Iowa State University, Ames, Iowa. At that time, each student made a three minute oral presentation of the paper that had been submitted by his or her school. Following each presentation, the panel of respondents commented on the papers and then engaged in dialogue with the students.

Panel members included:

Moderator:

Robert D. Havener*
President Emeritus, Winrock International
Interim Director, Centro Internacional de Agricultura Tropical, Cali, Columbia

Respondents:

Dr. Muhammad Yunus
1994 World Food Prize Laureate, Bangladesh

His Excellency Humayun Kabir
Ambassador of Bangladesh

John Ruan*
Chairman of the World Food Prize Foundation

Dr. Norman Borlaug*
1970 Nobel Peace Prize Laureate
President, Sasakawa Africa Association

A.S. Clausi*
President, Institute of Food Technologists
Senior Vice President, Retired, General Foods Corporation

Pekka Linko, Ph.D.*
Professor, Biotechnology and Food Engineering
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** Member of the World Food Prize Council of Advisors*

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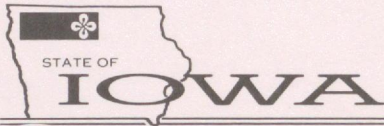
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TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF EDUCATION
AL RAMIREZ, Ed.D., DIRECTOR

September 8, 1994

Principal of Participating School
High School
Address
City

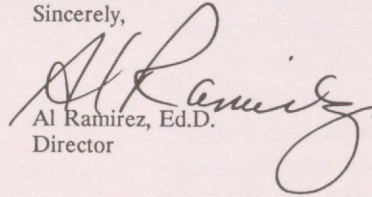
Dear Colleague:

The World Food Prize Youth Institute program is a unique opportunity for selected Iowa high school students and teachers to become involved with an issue of true significance: the world's food supply. Iowa native Norman E. Borlaug helped focus world attention on the issue when he won the 1970 Nobel Peace Prize for his advances in agriculture. In addition to its significance, this issue is interdisciplinary, illustrates the real-world application of academic knowledge and skills, and is an excellent example of 21st century career field. Attending the World Food Prize Award Ceremony and reception and participating in a seminar with this year's recipient will be valuable learning experiences for the participating students and teachers.

The World Food Prize Foundation is to be commended for including an educational component in its program for the first time this year. By doing so, the Foundation is acknowledging that tomorrow's progress in this urgent effort will be made by today's high school students.

I support this program and encourage your participation.

Sincerely,



Al Ramirez, Ed.D.
Director

GRIMES STATE OFFICE BUILDING / DES MOINES, IOWA 50319-0146

Papers

The following papers were presented as part of the Inaugural Proceedings of the 1994 World Food Prize Youth Institute. They are listed in alphabetical order of participating high schools.

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<i>World Food Supply: Focus for the Future</i> Carrie Shupp, Ames High School	7
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<i>Help the Hungry Help Themselves</i> Carrie Paulin, Central Community School, Elkader	17
<i>The World Food Prize: Changing the Face of Hunger</i> Jennifer Adams, Lamoni High School	21
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<i>The Cry of the Poor, the Hungry</i> Walter Goodwin, West High School, Sioux City	39

educate their citizens in the most efficient, simple methods of subsistence farming, but also lay the ground work for increased literacy. The increased literacy indubitably will encourage two things: a higher standard of living and a suppressed birth rate. Those goals can be accomplished with the foundations of an infrastructure of educational and financial systems. Education is our key, with it, we will be able to remove the clasp that has held down the developing nations for decades. Hopefully, these new nations can strive to throw aside war and unrest with more citizens literate and informed.

Indonesia is successful example of Integrated Pest Management (IPM), a natural technique that uses the built in plant and predatory defenses within an ecosystem to avoid chemical use. Indonesia was a pesticide-based rice producer, expending 20% of the world's rice pesticides, encouraged by an 85% government subsidy. 1977 saw a million ton shortfall, due to an infestation by the insecticide-resistant Brown Plant Hopper. New rice hybrids were introduced, but within nine years, the hoppers again threatened over 50% of the Javanese rice harvest. The new answer was to cut off all government subsidies, ban pesticide use, and create a massive education effort into sustainable, non-chemical agriculture. The results? 15% increase in rice harvest, return of indigenous paddy fish (a native protein source), and \$120 million subsidies saving. The education network set up in the initial implementation still functions as a conduit to deal with any further infestation and will as long as the native ecosystem remains fundamentally unchanged (*World Resources*. 1994. p.97).

Education also played a major part in Thailand's success to bring their nation out of a downward spiral. Not only did Thailand stabilize itself, but it began to pull away in the 1970s from the rest of the developing world in its rapidly growing Gross National Product. The government's investing into significant educational opportunities for all has brought the literacy rate up 20%, from 70% to over 90% in twenty years. The fertility rate has been more than halved from 5% to 2.2% (World fertility rate 3.3%) in the same twenty year interval. Thailand had a strong basis to build this success upon and this is the success that needs to be implemented worldwide (*World Resources*. 1993. p.49).

The Washington Post reported a story on the second element needed to create the infrastructure, both educationally and financially, to guarantee a solution to the burgeoning problem. Relief agencies create cottage industries to teach and establish basic free market economic principles. The term for this "microeconomics" is a foil to "macroeconomics" practiced by the giant development banks like the International Monetary Fund and World Bank. USAID quadrupled their investment from \$32 million to over \$142 million, a statement to the value of this new innovation. The focus by Non-governmental Organizations (NGO) to this innovation will create foundations of business and literacy (*Washington Post*. Ag. 20, 1994.).

The foundations of food security sit with the slowing of the fertility rate and a higher standard of technology able to use high yield farming techniques. Accomplishments abound in the areas of sustainable agriculture, education, and economic opportunity. The further emphasis on the value of NGO's as bodies best equipped to deal with the personalized character of various nations. The specialization and familiarity would lead to more support for their "grassroots" activities, the most effective programs. Education is the key to solving the problems of food security should we strive to reach for a solution.

What is Iowa's role for the creation of "Food Security in Third World Developing Countries"? Iowa is a world leader in research into a vast number of the agricultural fields, especially research directly applicable to *sustainable agriculture*. Sustainable agriculture "should involve the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources" as defined by the Technical Advisory Group of the Consultative Group on Agricultural Research (*Conference Proceedings*, Leopold Center for Sustainable Ag. 1992.).

Iowa leads in integrating sustainable farming methods into a conventional farming world. The research being done here in Iowa has implications not only for large one thousand acre operations but also for small one acre subsistence plots. Applicability of Integrated Pest Management, best use of natural organic fertilizers, and even biomass fuel systems is presently being explored here in Iowa. That is where Iowa must continue to lead, with the most efficient agriculturalists and educators ever,

to help deal with a mushrooming world population, fighting on the fronts of production and research and education (*Leopold Center for Sustainable Ag. Annual Report. 1990.*).

The World Food Prize has the opportunity and the means to positively affect the world. May it do so in the best of ways.

Security for food is a basic human right

Underdeveloped countries

Slowing the fertility rate

Thailand's example

Agricultural Diversity

Iowa is the heartland, technology and empathy

Non-Governmental Organizations

Aid, how to best use our present funds

Brown Plant Hopper, new methods for agriculture

Leopold Center, ISU - Ames, Iowa

Education is the key.

Carrie Shupp, Student Participant
Emily Mize, Student
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Ames High School
Ames, Iowa

World Food Supply: Focus for the Future

The population of the world is increasing by approximately 100 million people per year. With this growth, expansion is necessary, which will cut down on the amount of land available for crop production. This is causing world hunger to increase. Ninety-seven percent of this population increase will occur in third world countries where resources, technology, and education are limited. For these reasons, the World Food Prize is critical to the survival of the expanding world population.

The World Food Prize rewards the achievements of those who make a significant contribution to solving the world hunger problem. It also informs the public of the growing problem through media coverage. This allows people to become aware of the improvements that have been made, so they can build upon the improvement of others. The Prize and recognition are incentives that encourage people to get involved in finding new ways to solve the world hunger problem.

Des Moines, Iowa, is the "Food and Agricultural Center of the World." The state of Iowa is one of the major suppliers of crops in the United States, specifically corn and soybeans. Corn may also be used to feed livestock, such as pigs, which in turn can provide food and nutrients. Iowa State University is one of the leading developers of agricultural technology. This puts Iowa in a position of helping solve the problem of world hunger. Therefore, the World Food Prize is significant to Iowa, in that Iowa is a major producer and exporter of agricultural products and technology.

Many people are unaware of the severity of the difficulties that will arise from the decreasing food supply and increasing population. The World Food Prize was established in 1990 to increase public awareness. To make the Prize more visible in Iowa, we must use more media coverage and educate the people. Education must start at a younger age because it will be that generation dealing with this problem in its greatest intensity. To get more people involved, those who make smaller contributions should be recognized as well. This would show that every little bit would help and that you do not have to be a genius to make a difference.

Most of the people living in third world countries are not "food secure." They do not have a sufficient supply of food to keep themselves free from hunger, malnutrition, disease, and death. Countries that are food secure have enough food to feed their population and are capable of continuing to feed their growing population. Technology and resources also affect the ability to be food secure. Many third world countries do not have the resources to spend on this needed technology. Food secure also means being able to stop the present growth in population. With the rate we're going, even while using all available space to grow crops, we won't be able to produce enough food for everybody. About 700 million people today do not have enough food available to keep themselves healthy; therefore our world is not very "food secure."

Better distribution and education are two ways to improve food security in developing countries. Food needs to be given directly to the needy, not just to the rich to be distributed. Third world countries need aid in educating their citizens in the areas of crop production and farming techniques. They need to be taught about such things as choosing appropriate land, conserving

topsoil, and using the resources to their fullest extent. People also need to be taught how to control the leads to

population. This would involve the use of birth control, abstinence, and sex education. Research in agricultural improvements needs to be made available to developing countries in order to develop and produce new food sources. Through these measures, food security in third world countries and all over the world may gradually improve.

The state of Iowa can help solve this problem by sending educated people to developing countries to teach them about developing their own resources in order to produce crops and to continue producing them. They could also teach about birth control and other ways to control the population. Iowa's agricultural colleges can help by doing more research in the agricultural area, specifically on crop survival in adverse conditions. Unused machinery, which has been surpassed by our technology, can be sent to these countries, so they can improve their efficiency in crop production and be able to compete in the world market. The key factor in making a difference is education, in both developed and third-world countries. If you give people food directly, it only feeds them for a while. If you teach them how to feed themselves, they will have food for a lifetime.

Laura Lindstrom, Student Participant
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Ankeny, Iowa

The Barriers Can Be Broken

Every year, 17 million people die of starvation or of hunger-related diseases. One-third of Africa's people are undernourished.¹ These are just two of the uncountable number of startling statistics on the problem of hunger in the world today. And the consensus is that if we continue on the present course that the world is on today, starvation and malnutrition are going to become more and more common. Lester Brown of the Worldwatch Institute believes that by the year 2030, there will be only enough food to feed the world's people at the level of an Indian peasant.² This is because world per capita food production is falling; between 1984 and 1993, world per capita food production fell 12 percent.³ In order to secure the future of the human race, ways must be found to feed the people we have and the people we are expecting in the future. For this reason, the World Food Prize is important. It brings to the public's attention the problem of hunger in the world, and encourages everyone to find a variety of new ways to adequately feed all of the Earth's people.

The World Food Prize is significant to Iowa because of the United States's role in feeding people all over the world. As Nafis Sadik states in the *Futurist* magazine, "World food security now depends...on the performance of North American farmers."⁴ The U.S. is the world's top corn producer, and is second only to the former Soviet Union in wheat production.⁵ Production of grains such as corn, wheat, and rice is the key to feeding the world's hungry. Iowa is one of America's strongest agricultural states. Iowa produces more corn than any other state, is number two in soybean production, and ranks fifth in oat production.⁶ So because the world relies on the United States for food, they also rely on Iowa. What Iowa produces, and how much of it they produce, affects world food security.

The increased visibility of the World Food Prize could serve to increase awareness of world hunger. One way to increase its visibility would be to get the Future Farmers of America clubs and the student legislatures involved in the activities related to the prize. These are the people who will be influential in the areas of food production and government policy concerning food aid and world hunger in the future, and it is important that they are educated now about the importance of agricultural technology, the problems of starvation and malnutrition, and the importance of food security around the world.

Food security is "the ability of a typical family to maintain the level of nutrition necessary to good health and physical comfort."⁷ Quantity, reliability, and access are the three factors the UN Food and Agriculture Organization says are necessary to have in order to achieve food security.⁸ But in today's world, there are numerous barriers to achieving food security for everyone.

One barrier to food security is civil strife. In the conflict, food distribution systems and crops are damaged, and planting and transportation is disrupted. This is one of the major reasons there is hunger in Africa and Asia today.⁹ For example, the main cause of famine in Ethiopia and Sudan is the strain on their food distribution systems caused by nine million refugees from conflict. Somalia's famine has been prolonged, and may have even been started, by clan fighting. Conflict causes a vicious cycle of fighting causing famine, which leaves violence as the only way to get food, which

more fighting, and more famine.¹⁰

Other major barriers to food security are natural disasters, the need for improved irrigation, damage to the environment, a slowdown of innovation in agricultural technology, and distribution problems. For example, droughts in Southeast Asia and Africa depleted food supplies in those areas recently, while floods in China and cyclones in Bangladesh ruined crops.¹¹ In most of the developing countries, future food security will require improving irrigation, especially because of global warming.¹² The yields of some of the specially developed varieties of wheat and rice are not increasing as fast as they once did.¹³ And finally, the lack of infrastructure in developing countries keeps food aid from reaching the hungry.

But the news isn't all bad. Predictions of famine in India allowed the people to avert it, and for the last 20 years, India has managed to supply all its own food for emergency situations.¹⁴ Predictions of famine in other parts of the world might allow local authorities to avoid it. And scientists hope that recombinant-DNA bioengineering will soon supplement the plant breeding techniques that produced the special high-yield crop varieties designed during the Green Revolution.¹⁵

It also turns out that the problem could be solved not trying to make every part of the world self-sufficient in the area of agriculture, but by solving the problem of maldistribution. The FAO (Food and Agriculture Organization) estimates that 10 percent more food is produced than is needed to feed everyone in the world.¹⁶ The problem is getting it to those that need it so desperately. The U.S. and other countries donate approximately 11,390,000 tons of grain every year to those in need, but that aid doesn't always get to where it needs to be because of poor infrastructure and disorganized local distribution centers.¹⁷ When donor nations' food aid reaches the recipient countries, their role usually ends, and it is left up to other, local agencies to distribute it. If the reason for the donation is a national disaster, that food is usually easy to distribute because the recipients are in refugee camps and shelters. But when the cause is civil conflict, the governments are often uncooperative, and leave the distribution up to the Red Cross and other non-government organizations. This can be difficult for these agencies because the roads, trains, and automobiles are few and far between, and usually in poor condition. Peter Day, an agricultural scientist from Rutgers University, cites a case from the Sahel region of northern Africa as an example: "They would get large amounts of food to ports and to airfields, but distributing it out to where it was needed was extremely difficult because of the lack of infrastructure."¹⁸

However, this surplus supply of food may not last long, in light of the rapidly growing world population. While world per capita food production falls, the world population soars, to a possible 40 billion people in the near future.¹⁹ No matter how much agricultural technology we employ, we simply cannot grow enough food to sustain that kind of population. As Paul Ehrlich said, "It is 'theoretically possible' to feed 40 billion people in the same sense that it is theoretically possible for your favorite major-league baseball team to win every single game for fifty straight seasons, or for you to play Russian Roulette ten thousand times in a row with five out of six chambers loaded without blowing your brains out."²⁰ Those numbers far exceed the carrying capacity of the Earth.

With those things in mind, a well-rounded plan must be devised to feed the world's hungry—a plan that not only emphasizes agricultural technology, but one that also puts equal emphasis on improving distribution and controlling population growth. Only when we can grow enough food to feed a manageable number of people and are able to distribute it to them easily, will we achieve the U.N.'s three necessary factors for food security—quantity, reliability, and access.

Iowa, being an agricultural state, needs to understand its importance as a necessary part of achieving world food security. Some Iowans already do. For example, Iowa representative Jim Leach has proposed that the U.S. trade some of their grain surplus to the (now former) Soviet Union in exchange for oil, thereby aiding the Soviet Union, which doesn't produce enough food to feed its country's citizens.²¹ However, this is not enough. Iowa, and the rest of the United States, needs to realize the importance of attaining world food security. For example, Iowa could donate its grain surplus to developing nations that lack food security. The United States as a whole should support U.N. programs in family planning and improvements in developing countries. We need to realize that allowing starvation and malnutrition to continue in the world hurts everyone in the end. When

the people in developing countries don't have to worry about whether or not they will get enough to eat from day to day, there will be economic growth in those countries, and that serves to help the whole world. Working to attain food security is beneficial to everyone, and everyone, especially Iowa because of its major role in agriculture, needs to understand that.

Footnotes

1. Mary H. Cooper, "World Hunger", *CQ Researcher*, Vol.1, Oct.25, 1991, pp.803+.
2. Sharon Begley, "Can More=Better?", *Newsweek*, Sept.12, 1994, p.27.
3. *Ibid.*
4. Nafis Sadik, "World Population Continues to Rise", *Futurist*, Vol.5, March/April 1991, pp.9-14.
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Food Security in Third World Developing Countries: Recognizing the Role of Women

Daily, we are presented with the horrifying pictures of other peoples throughout the world in need of the basic necessities of life. One of the most descriptive is a skin and bones child on the verge of death by starvation. The World Food Prize, an award given by the World Food Prize Council, is a necessary award acknowledging the efforts of non-political persons whose purposes are to help all humanity. This prize helps heighten the awareness of the efforts to promote food security throughout the world.

In Iowa, a state labeled with the responsibility of "feeding the world", the importance of agriculture cannot be undermined. Iowa is also a state known for its quality of education. Some of the best institutions for the advancement of education in the science of agriculture can be found in Iowa. Iowa, as education and agriculture leader, must play a significant role in creating a food secure world.

Awareness must become a means of promoting measures to work toward this challenge. A key way to make the World Food Prize known in Iowa is to focus on Iowa's youth. An early introduction to all youth through education will enhance the long-term viability of the project. Iowa has several organizations that promote youth leadership including 4-H and FFA which provide a link between state leaders, youth and family. Furthermore, media must be utilized in presenting the World Food Prize in a positive light.

As concerned citizens of this world, we must understand that it is important to all humanity that Third World Countries become "food secure." Food secure means meeting each individual country's capabilities in producing food that will meet the needs of that country. Further defined as "food locally produced, processed, and stored, available year after year despite natural or human made famine" (Advocates for African vi). As we stand today, our world is a long way from being food secure. One way to meet the challenge of food security is by recognizing the role of women in agriculture developmental planning in Third World Countries. Often food security is confused with financial security. For most women, security means feeding their family. Dr. Emily Moore, Director of Food Programming for CARE, says, "The women are growing the food to feed the people; if we continue to neglect that role, we continue to neglect the problem of famine" (Kenney 7). To avoid this neglect, it is essential that we not only revise our current practices to educate ourselves in preparing for this challenge, but that we also view this as a partnership in a transfer of knowledge where learning is two-way.

In developing countries the role of women involved in agriculture has largely been misunderstood and confused. In addition to the domestic duties of the home, women are also responsible for the work in the field. According to Anne Kenney in "Helping the Women Who Feed Africa", a typical day in the life of an African woman consists of nine to ten hours of field work and then an additional seven to eight hours of domestic duties (7). Women are the majority of the subsistence farmers. They produce the food that feeds their families, and subsequently, their

countries. In Africa 85% of food production is by women; 50-60% in Asia. Women plant, cultivate, harvest, transport, access water, prepare and serve the food. Because most women are unpaid for their labor, they are not considered part of most census figures in the agricultural workforce (*Global Ecology Handbook* 52). The demographics of the rural development of Third World Countries show the critical role of women; however, "women are generally regarded by development planners as 'unproductive'" (Sparr 135). Men tend to lean toward cash crops; women must prioritize according to their domestic needs. As men make decisions based on status and power, women make decisions based on humanity.

This issue is not new. The "American" definition of man as farmer-crop caretaker-and woman-cook, cleaner, and raiser of children-is in direct contrast with the role of the woman in Third World Countries. Possibly because of this stereotype, men receive the training and women, who actually do the field work, seldom receive the information. This absence of women in training may be a reason that training programs and projects fail.

Each year, America sends people to developing countries to train farmers on efficient and productive farming practices. Usually women are not included. In Nigeria, an examination of the mandated Agricultural Development Projects (ADP's), showed that women were "not the primary targets of the training programs, and so their needs were never assessed" (Sparr 1 4Z). Damaging effects from exclusion also occur when a country's culture is neglected. Many projects fail when they do not adequately include the "indigenous cultures <that> are often quite different from the expectations of development planners" (*Global Ecology Handbook* 53). The woman is an integral part of the current agricultural system in these countries; all developmental planning becomes moot when the knowledge, needs and expertise of women are excluded. Who better knows the capabilities of the land than the women who work the land?

Recently attention has turned towards recognizing and improving the role of the woman in the agriculture area of developing countries. As women's roles in food production are acknowledged, extension services and programs once geared only to men are now being opened to women. Technical assistance, economic assistance and education are increasingly being offered to women with successful results.

As a leader in agriculture and education, Iowa must play a significant role in restructuring developmental planning to focus on women. Research tends to indicate that women need access to improved agricultural technology. This would include both training and equipment. Iowa, with its Universities and Extension programs needs to provide support for such projects. Several organizations including ECA, UNFPA, UNDP, UNICEF and the FAO have begun to stress training in these areas. Iowa members of these organizations must push for the inclusion of women in these areas. In the state, we successfully utilize cooperation and communication from farmers on all sides of the issue: farmer to teacher to researcher to laborer.

It is essential that this same form of cooperative planning takes place in developing countries. Women need "equal access with men to technology and to upgrading the level of technological training for all the population in rural areas" (*World Conference* 23). The hope is that this training will allow the women to focus on the needs of making their nation food secure. As previously stated, in developing countries, women are farming; thus, advanced training should help minimize the time women spend doing dual duty as farmer and head of household.

An example of one area where technical training is most necessary is the availability and access to water. In Africa alone, women spend "at least two hours a day" fetching water. This time could be better invested. Teaching and training women on ways to create better availability of water will enable women the ability to redirect their efforts. Many advantages will become apparent including "growing other food crops and vegetables near the home... and improvement of community health. . ." (15).

In the area of economic development, women also need to be considered. In several instances, programs focusing on money failed when geared toward men. When the programs changed and focused on women, the results were more successful. For example, according to an article in the August 20, 1994, *Washington Post*, women are more successful in micro-loan programs. Women,

because they are responsible for a family's welfare, re-pay loans better and improve a family's standard of living (Singletary 17). "Studies have shown that the majority of women have become increasingly economically dependent on their families for handouts largely due to their lack of technical skills and formal education..." Thus in 1975, the Scheme for Agriculture Credit Development was established, providing the opportunity for implementing more projects designed to focus on women. If the goal is to assist developing countries into becoming food secure, a portion of that goal must be to assist women. According to the *Global Ecology Handbook* "lack of appropriate, area-specific technology impedes efforts to improve food production and alleviate poverty" (87). Women must be included in technical and economic development plans.

A major step in the involvement of women in planning programs is the need for education of the women in the Third World. Iowa, as a leader in education, must utilize its resources to provide the best education format possible. This format must include educating the "teachers" about particular cultures to insure that the ideas from these developing countries are taken into consideration. By viewing the learning spectrum from both sides, the teaching process should be more successful. One program in the U.S. that is helping in the education area is LISA (Low-Input/Sustainable Agriculture). This program involves the farmers in planning research goals, as well as "on-farm" experience of much of the research itself. When utilized to the fullest capability, and women are included, this type of program helps establish food security. As stated earlier, women in agriculture must be included.

In a world faced with over-population, helping a nation become food secure raises the standard of living which in turn has been proven to lower birth rate. According to experts in a February 8, 1993 issue of *U.S News and World Report*, "a critical mass of educated women is helping to diffuse new attitudes about family planning throughout society" (53). The advantages of educating women is never ending; they are numerous in size, structure, effect, and importance. In developing countries, education must be similar to agricultural education in Iowa. Education needs to be a continuing process through which new ideas are developed, shared, and put to use. Regardless of gender, this circular process must continue farmer to farmer, educator to farmer, state to state, state to nation, nation to nation, nation to world.

The problems that face food security are immense. Iowa, as a leader in agriculture and education, needs to be at the front of this issue, providing the women of each country with resources and training that lead the way to new advances in technical development, economic development and education.

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Help the Hungry Help Themselves

As high school students from a rich agricultural community, we seldom see hunger. However after a World Food Day Conference in our home town, Elkader, Iowa, in October of 1990, we were made aware of many problems concerning world hunger.

Our scout troop volunteered to help with the conference which is held on October 16th to focus attention on the needs of the world's hungry. Over 150 nations and 340 organizations in the United States participate each year. The featured speaker at Elkader's conference was Mr. Idriss Jazairy, President of the International Fund for Agricultural Development, a United Nations agency.

The World Food Day Conference prompted us to start a Girl Scout service project we titled, "Help the Hungry Help Themselves." We learned about local, regional, national and global world hunger issues. Our project was nominated in the youth category of the Presidential End Hunger Award, a Readers Digest Service project award, several Girl Scout awards and the Iowa-Grinnell Peace Project Award. The nominations, as well as winning the Iowa Peace award, gave us the prestige we needed to be taken seriously by our peers. The prize increased people's awareness of world hunger and poverty which encouraged others to make contributions locally, regionally and globally to help alleviate the problems of world hunger and poverty. The awards, nominations and prizes instead of ending the project only gave it more fuel to continue.

We received massive media attention our project was featured in local and global newspapers and magazines. Radio and television programs were broadcast. Groups asked for our presentation so much we put it on video tape. In the end, the nominations and prizes encouraged the generosity of people who contributed over \$10,000 in food and cash to our local food shelf, in addition to \$14,000.00 for our sister city area of Algeria. These donations bought better breeding sheep, a water pump, a weather station, and slide equipment for training women.

If junior high students are able to do this because of a hunger project and some recognition in the form of nominations and prizes, think of what the World Food Prize could mean to the world!

We have learned that when a prize is given, it focuses attention on your project besides earning the recipient the respect of their peers. Media attention encourages others to be Involved. It also promotes awareness and provokes thought about the food situation. Giving the person more credibility and respect encourages others to be involved. The prize makes people think about the problem and encourages them to work towards that goal In their professional lives. We know this first hand especially when you are dealing with hunger issues.

The World Food Prize is particularly significant to Iowa because the economy of the state is so closely tied to the economic well-being of agriculture. Any event encouraging agriculture has far reaching ripple effects. We rank first in production of corn, second in soybeans, fifth in oats and hay and second in the capacity of off-farm storage facilities. Our railroads move these exports to huge grain loading facilities which ship them on down the Mississippi. The small towns and businesses also piggy back on the farmer for their survival. A prize given in Iowa highlights and draws media attention to our state and its chief exports. Anything we can do to help increase demand for these exports is worthy of much effort.

The World Food Prize Foundation has already taken a step in making the World Food Prize more recognizable in Iowa—involving the youth here today. Scholarships could be awarded to high school seniors planning careers improving the quality, quantity, or availability of food in the world. Next, curriculum packets could be developed so students at every age level could be involved in planning and holding a food conference once a year in their schools. Science, history, English, math and art classes could be incorporated into this effort. At the local conference, projects can be exhibited and awards given for the most outstanding ideas. Winners would go on to the next level of competition until, ultimately, they would end up at the World Food Prize Youth Institute. Incorporating the whole school at each appropriate level, exposes more people to hunger issues—more youths and their family members, as well as those community members who are asked to judge or attend. And more importantly, the more media attention you will gain. Look what it has done for science fairs and invention conventions that are so popular.

What does it mean to be food secure? Most Northeast Iowa students' idea of hunger is making it through first hour English to fourth hour history without a snack. Our worries consist of plans for the weekend and what we got on that last chem quiz, not where our next meal is coming from. We are food secure. In some countries hungry people may think of themselves as one-meal-a-day or two-meal-a-day families just as we have one and two car families. Many governments have no money to give people to buy food and if a neighbor shares his food with others his own family may go hungry. These people are not food secure.

This summer thirty-six dignitaries representing newly formed states in Russia visited our friend's agriculture research and training center as part of a USAID project to learn about our agriculture system. They toured Elkader agriculture production businesses. Jenny's family hosted a luncheon complete with a buffet table filled with food. The visiting dignitaries crowded around the table and ate until it was all gone. We later found this had happened wherever they ate. Their food security is low. A banker from our town was asked to go abroad to consult on setting up a banking system. Because of his food security fears, he packed more food than clothing.

So what can be done to improve food security in developing countries? As part of our project, we asked this question of heads of state, ambassadors to the United Nations, and Iowa senators, and congressmen when we visited Washington DC and the United Nations. What we found out was: Gone are the days when America's solution worked for the world's problems. We are all familiar with the phrase "Give a man a fish and he'll eat for a day; teach him to fish and he'll eat for a lifetime," which we heard over and over from these leaders.

But let's examine this truism. We feel that Mr. Jerry Akers in his book titled *Partners with the Poor: An Emerging Approach to Relief and Development* has some important points for consideration as to how we can help improve food security in developing nations.

First. If you teach a poor person to fish, you must assume he has access to credit at fair terms, so if he has no money he can purchase the rod and the hook. Thus developing countries need financial assistance.

Second. There must be a fish in the water safe for human consumption. The water can not be polluted with waste. Thus developing countries need environmental expertise.

Third. After the fish is caught and he satisfies his and his families immediate food needs, he needs a place to sell the remaining fish for money. Thus developing countries need markets.

Fourth. And perhaps the most important, these people need the right to fish. Will he or she be allowed access to the pond without fear of being shot by his neighbor or the government who may want to take the fish themselves to feed their army? Thus developing countries need peace.

The point is that teaching someone the skills and techniques of catching fish or improving food security in developing countries must be part of a broader and more complex system.

And lastly, what should Iowa's role be? Iowa is the model of agriculture production and support for the world. But we sometimes forget we also produce some of the best educated, hardest working, ethical, levelheaded students in the world. Maybe Iowa's role could be to motivate our students towards becoming Involved in hunger solutions.

As the income levels of poor countries improve, they become increasingly good customers for

US products. Iowa, as a leading agricultural exporter is the direct recipient of such improving economies. Politically, through the development of new friends and allies, and educationally, through sharing our knowledge and skills with others, we learn to appreciate other cultures and all, as a global community, will benefit.

Iowa needs to increase people's awareness of people toward world hunger and poverty and make contributions locally, regionally, and globally to help alleviate these problems. A world with hands reaching out to help the hungry help themselves leaves little time for those same hands to close and fight.

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The World Food Prize: Changing the World

What is the World Food Prize?

The World Food Prize is an international award that recognizes individuals who have made significant contributions to the development of agriculture and food systems. It is the highest honor in the field of food and agriculture.

The award is presented annually to a single recipient who has made a significant contribution to the development of agriculture and food systems. The award is presented by the World Food Prize Foundation, which was established in 1986.

The World Food Prize Foundation

The World Food Prize Foundation was established in 1986 to honor individuals who have made significant contributions to the development of agriculture and food systems. The foundation is a non-profit organization that is dedicated to the advancement of food and agriculture.

The foundation's mission is to recognize and honor individuals who have made significant contributions to the development of agriculture and food systems. The foundation also provides financial support to individuals and organizations that are working to improve food and agriculture.

The foundation's award is presented annually to a single recipient who has made a significant contribution to the development of agriculture and food systems. The award is presented by the World Food Prize Foundation, which was established in 1986.

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The World Food Prize: Changing the Face of Hunger

Why Is the World Food Prize Important?

Hundreds of people die from starvation and malnutrition daily. It takes a very special person to have the drive to do something about this growing problem. The people with that dedication must be willing to make sacrifices, for they give up much of their time, money, and lifestyles. These people must be recognized.

That is why the World Food Prize is important. The Prize itself is not only a prestigious award, but it also gives the receiver a cash prize of \$200,000. The Prize draws attention to the problems surrounding food shortage and gets young people involved. In the past, some of the award receivers were directly involved with farming and agriculture. Others were involved with food technology and industry. Because only the exceptional will work hard enough to make a difference, the World Food Prize is an appropriate way to show appreciation to these people.

Why Is the World Food Prize Particularly Significant to Iowa?

Living in the "heart of America," it is hard to imagine the lifestyle of the hungry. While Iowans are surrounded by corn and beans growing as far as the eye can see, thousands of miles away in a desolate, third-world nation, children are going to bed at night without anything in their stomachs. Is this picture accurate? The answer is "no." Although we as Americans tend to think of hunger as a problem contained in African nations like Ethiopia where Sally Struthers and Ed McMahon are the gurus for ending starvation, there are impoverished people right here in our own nation that need to be fed, as well as in these other, incontestably less fortunate countries. How do we attack this monster? Where do we begin? Who should be involved?

Here in Iowa, the key is conservation. We are one of the largest suppliers of corn and beans for the entire globe. Both are staple foods for most American and many international households. If anything detrimental happens to our crops, we are not the only people who suffer. Therefore, we must take precautions in how we treat our land, energy, and water supply.

Our first concern is our energy supply and usage. Energy affects both agriculture and industry, so it is essential to maintain a steady and efficient energy supply in order to keep the economic balance. In Iowa today, coal and oil provide most of our energy supply, with the use of ethanol steadily increasing. Nuclear and solar power may replace some of these resources in the near future, however. In the long run, it will boil down to a compromise between efficiency and safety. Only time, experimentation and a major judgment call will make the choice.

Environmental pollution also raises concerns. What we do to our land, our air, and our water affects what kind of food we can grow and how much. South America is a prime example. The gutted-out farmland of northern Brazil is good for an average of one-and-a-half years after it is raped through the slash-and-burn process. The crops it yields are not of a very high quality for all their trouble and cost. Conservation needs to be taken into serious consideration when trying to view the big picture. In the case of Brazil, it must be considered that tropical rain forests are an

essential part of the global ecosystem. When they are destroyed, that ecosystem will not function as it should. The same line of thinking applies in Iowa. The forests, prairies, and farmland must be kept in natural balance. When any of the three is destroyed, the other two cannot and will not function as they should.

Eating enough of the right foods is essential to be a functional person. If there is not enough of the right kinds of food for everyone, however, it is not possible for everyone to live well. As Iowa is a major contributor to the world food supply, much of that responsibility rests on our farmers' and agriculturists' shoulders. It is their job to make sure that the crops they are planting are high-producing, sturdy plants and in quantities great enough to go around. It is our job, as Iowans, to help the farmers by simply learning how to better manage our resources. With careful planning and common sense, we can make the most of our little state and its rich resources. We have a lot to offer. We are an important source for the present and the future.

What Can Be Done to Make the Prize More Visible and More Recognizable in Iowa?

The World Food Prize is not in the dictionary, encyclopedias, or any other source readily available to students. Most people have, however, heard about world problems of overpopulation and malnutrition. What people need to know is what is being done by individuals to help conquer these problems. The World Food Prize is one such method of recognition.

To make this state, and the rest of the nation for that matter, knowledgeable about the World Food Prize, it needs to be more widely advertised. Television documentaries on the subject would be useful, as would magazine articles, newspaper articles, and radio. We need to let the people know there is something they can do about universal hunger.

Youth makes up a major part of Iowa's population. For this reason, it would make sense to spread the word and educate the youth about the World Food Prize. It would give young people a chance to be a part of a major organization and to help make a difference. Most parents would be proud of their children's involvement and would support them. Colleges also need to be involved with the World Food Prize. A grant could be given by colleges to students who are dedicated to and actively involved in helping to solve the problems of world hunger. This might introduce students to a career in food and agriculture.

What Does It Mean to Be Food Secure?

On a personal level, being food secure is the security of knowing when and where the next meal is coming from, knowing that we are going to get three meals a day, knowing that we will have food in the future, and knowing that our food will contain all the vitamins and nutrients our body needs to stay alive. On a national level, food security is reached when a government can feed its people now and in the future. In some countries the governments have enough money and supplies to feed their people. They just do not supply their people; they keep it for themselves instead. On a global scale, to be food secure is knowing that there is a supplier for the world. Soon, that supplier will run out of food for all the people, considering that the world population will double to nearly 8.9 billion by 2030. Food production will gradually fall, spurring grain shortages. Food security will become the principal preoccupation of the national government. Statistics say that grain harvest will be an estimated 2.1 billion by 2030. Based on the U.S. consumption level of 1,765 pounds per person, that would sustain 2.5 billion people. (*USA Today*, 4A)

One alternative to handouts is to build up the food supply in an area so that its people can supply themselves. In some cases this takes less money than handouts. In Kerr Wally, Gambia, local women working with thirty-dollar loans have successfully established their own grocery stores. They are not what most Americans would consider a supermarket, but the small padlocked sheds filled with tomato paste, bags of sugar, couscous and onions are enough to supply the entire area. (Singletary)

This thirty-dollar loan program is much cheaper than the multi-million dollar relief plans currently used by the U.S. government to aid struggling countries. The major benefit of this program is that the area will be able to supply itself instead of living off government handouts. Not

only does it secure the food supplies of the area, but it starts the country towards developing into a prosperous nation.

What Can Be Done to Improve Food Security in Developing Countries?

Twenty-four people starve to death every minute. That is an enormous number of people, especially considering that there are 1,440 minutes in every day. What can be done to improve food security?

First, we need to completely restructure the economic systems of all countries. For example, the former Soviet Union's ruble has little to no value because of the fact that all of the food in the former Soviet Union is being hoarded. People do not want to sell their food because they will not make any profit. They cannot buy it because of the value of the ruble. American farmers do not want to sell to people within the former Soviet Union because they, also, will not make any profit. To resolve this, we need to start at the source of the problem by lowering prices of such things as farm machinery and seeds. This way farmers will be able to lower the price of their crop making it possible for people like those in the former Soviet Union to buy the food.

Secondly, the organization Outreach International says, "To give someone food will feed them for a meal, but to teach someone how to grow food will feed them for a lifetime." Teaching people an efficient way of growing and producing food is another way to improve food security. One way to do this is by simply informing them of ways to help increase the production level. Grains that are resistant to drought and insect infestation should be commonly used in dry areas. We should teach them how to properly use fertilizers and pesticides. We should also teach them how to effectively use means of irrigation so that they can turn infertile desert lands into productive farmlands and about crop rotation so that they prevent the eroding away of their topsoil.

Over population is also a problem factor. Teaching the people about birth control and contraceptives is a way to help decrease the number of babies born. A restriction on the number of children each family is allowed to have may also help alleviate this problem.

If these ways are followed, some of the problems dealing with food security should be resolved. Educating them is the only way for them to be secure even when we cannot be around to insure it.

What Should Iowa's Role Be?

As one of the nation's leading agricultural states, Iowa's role in securing food to underdeveloped nations is an important one. Not only does Iowa have the climate and natural resources to be a successful farming state, but we also possess the knowledge and skills needed to stretch those resources to their limits. Although we cannot change a country's climate or resources, we can pass on this knowledge.

In the role of mentor, the agriculturists of Iowa can show underdeveloped nations techniques to improve production: i.e., crop rotation, proper irrigation methods, chemical and genetic engineering, terracing, maximizing livestock production areas, and veterinary medicine techniques. We can help to introduce agricultural technology into these areas and encourage their governments to take active parts in investing in the advancement of farming machinery.

Iowa will eventually reap the rewards of the role they play. Not only will these countries remember all the ways Iowa helped them in future trade agreements, but Iowa will have something to take pride in. The greatest reward will be the knowledge that Iowa has helped an underdeveloped country learn to feed itself. That is worth more than money can buy.

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Looking for Answers

Section 1: The World Food Prize

Why is a World Food Prize important?

A major challenge that lies just over the horizon will unify all of civilization. It is a challenge from which no nation is exempt—the challenge of providing food for the population of the mid-21st century, which is expected to stabilize at around 10 billion people. According to an article published in *U.S. News and World Report* (Feb '93), worldwide famine in the next century is still possible despite improvements in food yield. These improvements, as stated in the *Smithsonian* (Mar '93), can be attributed mainly to advances in fertilizer and pesticide technology. Also, according to the *Smithsonian*, increasing trends in fertilizer runoff and pesticide contamination should continue as world population grows. Any such solution, which will have eventual negative ramifications, is an item for concern, as the problem regarding world food supply is not simply going to vanish with time. Permanent solutions which involve breeding of pest-resistant crop varieties capable of thriving on poor soil have been applied with great success, however. To date, few, if any such have achieved the legendary status of the Green Revolution, which wiped out starvation in Asia during the 1960s. The architect of the Green Revolution, Norman E. Borlaug, Ph.D., first identified the need for the World Food Prize. Why is it necessary to have a world food prize? One should pose this question to the estimated 700 million people which are currently undernourished in developing countries. The Green Revolution proved that further progress in agricultural science holds great promise for third-world countries, where, according to the World Health Organization, 20% of all people are chronically undernourished. Further research is needed in the area of chemical use and native crop species, according to skeptics, before other “Green Revolutions” are encouraged to sprout up elsewhere, beyond Asia. *It is the application of this research that is rewarded by the Food Prize.* Through their contribution to the spread of low environmental-impact farming, scientists and policy makers not only ensure the welfare of their fellow citizens, but also act with foresight—in insisting that the solution be permanent—as is the problem of food security.

Why is the World Food Prize particularly significant to Iowa?

The significance of the World Food Prize to Iowa is two parts stereotype, three parts substance. Lorrin Anderson stated in an article from the *National Review* (Feb '92) that, “Iowa... ..is no longer the corn-fed, placid place that maybe it never was.” Anderson also calls attention to the fact that farm workers account for only 5% of the total labor forces. Iowa’s image is, nevertheless, an agricultural one; this is clearly indicated by the journalist’s statements. Anderson does not mention, however, the degree of mechanization of Iowa farms, and the size of the labor force running farm related infrastructure, such as railroads, and equipment manufacturers, such as John Deere. Iowa is a prime example of the most modern farming techniques, which almost blur the distinction between farm and factory in their incorporation of technology versus manual labor. This cutting-edge status has earned

Iowa the respect of foreign leaders, most notably Mikail Gorbachev, whose visit to an Iowa farm gained national attention several years ago. Iowa is an appropriate home for the World Food Prize, because the continuing technological evolution of its agriculture is exemplary to the entire world.

How can the Prize be made more visible/recognizable in Iowa?

Just one glance at a CD-ROM data base will reveal the amount of national media attention given the state of Iowa. There is little to be found in the way of marketable journalism with the exception of the occasional Ku Klux Klan convention in Dubuque, or the melodramatic child custody battle crossing state lines. Unfortunately, many national news networks are reluctant to invest in reports that will not guarantee increased viewer numbers. Executives apparently see the World Food Prize as such an endeavor. Reporters do injustice to their viewers and readers by presenting only half the picture. Magazines and news reports abound with graphic pictures of young African lives being claimed by starvation, and yet few words are spoken about the solutions in the making. It is possible that this error is being made out of simple ignorance. Perhaps it would be necessary to prod these journalists with more press releases. Undoubtedly, if journalists were aware of the impact the laureates' achievements had on the lives of millions, indeed, *billions*, they would be more apt to give the World Food Prize the coverage warranted by the significance of its causes.

Section 2: Food Security in Third World Developing Countries

What does it mean to be food secure?

America certainly felt the pinch of the Arab oil embargo of the early 1970s. Most Americans do not realize, however, that the percentage of the world oil market controlled by the Arabs is actually *less* than the percentage of the world *agricultural* market controlled by the United States. In fact, according to the *Economist* (Dec '92), the U.S. donates more food supplies to needy countries than any other nation. It could be said, based on this evidence, that the U.S. is very *food secure*, meaning that it produces more than enough food to feed the entirety of its citizens.

How can food security in developing countries be improved?

Unfortunately, third-world developing countries lack the food security of the United States. They are on the opposite side of the spectrum, receiving the large donations from the U.S. Many of these nations have little arable land. Consequently, crops must be grown on what little fertile land there is in such a way that the soil is not exhausted, yet adequate yield is obtained. An article recently published in the *UNESCO Courier* (Jun '94) states, "Plant improvement through the application of biotechnology is expected to help in worldwide efforts to increase food production." *Futurist* (May '92) magazine predicts the promise of microlivestock, a category of animals consisting of mini-cows and small goats capable surviving on land with little vegetation. Developing markets could be stabilized by central planners, according to the *Review of Economics and Statistics* (Feb '92). The report verified the capacity of central planners to identify market imbalances through the use of an econometric model of grain supply, demand, and trade. The need for a practical solution is great, but the aforesaid *ideas* for such a solution are many.

What should Iowa's role be?

Iowa's role in promoting food security abroad lies in the example it provides both in product quality, and in modernization. Iowa Beef Processors Inc., for example, was rated one of the top 20 companies by *Financial World* (Sept '91) in the area of quality control standards. Proof of Iowa's agricultural modernism is found in the research and development department at the John Deere Co., described by Mason City High School Mechanical Drawing teacher Mr. Ken Shadle as "Outstanding and extensive." For third-world developing nations, Iowa points the way to the 21st century, not only with its modern gadgetry, but with its timeless attention to detail. As a state, it's a milestone of how far agriculture has come, but as a sharply contrasting exception to a less-modern and less-efficient general truth, it's a reminder of how far other nations have yet to go in achieving civilization's collective goal of food security.

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Mt. Pleasant Community High School
Mt. Pleasant, Iowa

Teaching the World to Fish: A Look at the World Food Prize

*“Give a man a fish, and he will eat for a day.
Teach a man to fish, and he will eat for a lifetime.”*
Chinese Proverb

My great-grandfather came to Iowa shortly after it became a state. They were fleeing a famine in their homeland. They found sanctuary in this new country and instilled in succeeding generations the same strong will and work ethic by which they had lived in Ireland. They were prosperous. These proud people are proof that in the 1840s hard work and determination could solve the famine for some. However, hard work and determination alone, we all realize, cannot solve the food crisis for all people—not then, and not now.

I count myself fortunate to be living in a country that is not plagued by the scarcity of food. The prosperity by which we live allows one person in the United States to waste more food in one week than an entire family in a third world country could obtain in a month. By drawing Iowa’s attention to the World Food Prize we are recognizing the severity of the conditions in these third world countries. We are also recognizing those individuals who dedicate their time and talents towards finding not just a temporary solution to the problem, but to dissolving the devastating chain of hunger.

In offering a World Food Prize, the Foundation draws the focus towards the efforts of these dedicated people who have given so much to champion the cause. This focus in turn draws the involvement of others such as educators, scientists, or citizens who, inspired by the winner’s accomplishments, may also join the crusade through research, monetary donation, or presentation in the classroom.

Many professions will be employed to activate a plan for future world food security. Education and research will be of primary importance to the midwestern states—the grain belt—so that strains on the rich farm lands do not deplete the valuable soil and water needed in the production of crops for other parts of the world. Besides educators, scientists, and agronomists, the sociologists must also be alerted so that new methods and traditional practices may go hand-in-hand to maintain a country’s identity and autonomy while making it part of the search for a solution to the world food crisis.

Several years ago, the Iowa Department of Education made global education a priority goal in its schools. It mandated that new textbooks address world cultures, world economics, world politics, and world literature. The aim of this goal was to increase the awareness of Iowa students regarding their world outside the midwest and, indeed outside their safe and secure country. With this goal already in place, Iowa teachers would naturally welcome prepared quality teaching materials that address the problem, outline the steps that have been taken, celebrate the successes that have been achieved, and illustrate the effects individual contributions can have on the solution as a whole. These objectives can conceivably benefit our students who are entering the world marketplace of

the year 2000—a much different place than the world our parents were trained to address.

The World Food Prize recipient is an individual or group whose contribution has such far-reaching effects that have been or will be felt by possibly millions. This adds substance to youthful idealism and would therefore be a prime objective for classroom materials.

Since 1985, I have been affiliated with Explorer Post 1846 whose target is to re-enact in Iowa as it was in the middle of the 1800's. We operate a log village site using the authentic tools and techniques of the last century. Experiencing “first hand” the challenges of food production, preparation, and storage without modern technology has taught me an appreciation for the technological and agricultural advancements made by our country in the past one hundred and fifty years. Studying and seeing this progression has made me realize that it is possible to dramatically improve what seems to be an overwhelming situation. A world that is now facing extreme population growth needs to waste no time in laying the groundwork for these advancements and techniques as they apply to the 1990's. The World Food Prize (and all its related objectives) may be the symbol, indeed the signal, needed to begin the healing process in this catastrophic plague of hunger.

By realizing the severity of the problem, by believing that a solution is possible, and by focusing on education and action to develop that solution, we create the proper conditions for a permanent solution to the crisis of world hunger.

In 1993, the former Minister of Agriculture of the People's Republic of China, He Kang, was awarded the World Food Prize. He embodied these values of realization, belief, education, and action. His contributions to agricultural development and research act as a catalyst, a model, and an inspiration to individuals and governments alike. The celebration of this man's achievements and the achievements of other World Food Prize winners, may well set into motion a positive chain reaction of events that could reverse the situation as we know it. With continued efforts, security and growth in the world food supply is an attainable goal. We can indeed “...teach men to fish.”

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Muscatine, Iowa

Solving the Starvation Problem

How many of you here have ever been *really* hungry for an extended period of time? How many of you have fasted for even 24 hours? I doubt that many of you have. It's hard for us Americans to understand what hunger is really like because American has never been hungry as a nation. Our food supply has always been plentiful and even in bad years, we have enough. Americans are guilty of taking for granted our plentiful food supply. We have 2% of our population that feeds the other 98% and the trend towards fewer farmers seems to run counter to the trend of ever-increasing world population. Given the long term success of Iowa's agriculture, what can Iowa teach the rest of the world to make it more food secure? We must first understand that Iowa has been blessed with the natural resources food production. Yet, without our economic system, infrastructure, and attained knowledge, we wouldn't have the production that we currently have. Developing countries would be wise to concentrate on developing these three areas in order to become food secure. Our economic system is possibly the key to Iowa's agricultural success. Our economic system rewards those who are efficient and productive. Those farmers who are profitable survive in our system.

Iowa's infrastructure has had a large impact on our agricultural success. Farm to market roads should be a top priority, along with electricity, trains, and barge traffic systems. A developing country concerned about food production needs a strong and sound infrastructure.

The third ingredient to a successful agricultural system is education. We should understand that developing countries need the information, education, and technology now, not later. One of Iowa's most nationally recognized strengths is its education system. This could be Iowa's golden opportunity to help developing countries keep up with our constant change in technology for agriculture. Iowa Senator Jack Rife stated, "In today's ever-changing world, farmers need to be better educated in order to be more efficient to feed a hungry world." I feel that Iowa's examples of education, research, and extension could be models for any developing country's agriculture.

Since developing countries don't have the money for high input agriculture, I suggest they try to maximize fields by using a more sustainable system. We have much expertise in specialized seeds and hybrids, modernized machinery, and soil saving tillage practices. If we could send educated representatives over to these weak countries and teach them these practices and show them how to use these machines, their food production capabilities would improve dramatically. To use an old expression, "Give a man a fish and you feed him for a day, teach him how to fish and you feed him for life."

It should be a goal for any developing nation to be food secure, that is to produce all their own food and not have to import. I've tried to outline my thoughts and ideas on ways that Iowa has proven to be an effective producer of feed. These methods or some variations could be used to help weaker nations achieve what any nation's top priority is—to be food secure. As long as people are starving and fasting by circumstance rather than choice, the World Food Prize will continue to be a priority.

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The World Food Prize: Fighting the Invisible Enemy

Hunger is a difficult concept for middle class Americans to fully comprehend. My neighborhood grocery store has aisle after aisle stacked with an incredible variety of food and food products. The produce aisle contains an amazing assortment of attractively displayed fresh fruits and vegetables. The meat cases are overflowing with various cuts of beef, pork, and poultry. Fresh eggs, cheeses, and any type of bread imaginable are readily available. Freezers are stacked with ice cream, pizzas, and microwave dinners. Driving home, we pass dozens of fast food and conventional restaurants.

Although my family has plenty of food to eat, millions of Americans, and hundred of millions of people around the world do not have enough food to eat today. For these people, many of whom are children, hunger is a daily fact of life.

Since 1986, the World Food Prize has recognized individuals who have worked to fight hunger throughout the world. By improving the quality, quantity, or availability of food in the world, these individuals have literally saved the lives of millions of people. The World Food Prize not only honors these people for their accomplishments, it offers to the world for what can be done in the future. In addition, the World Food Prize helps to establish role models who will inspire the best and the brightest young people to consider careers in food and agriculture.

The World Food Prize is one of the most meaningful honors given in the world today because it draws attention to the issue of food supply and distribution throughout the world. By bringing attention to the problem of world hunger, the World Food Prize can help to overcome some of the myths about hunger which have existed. For example, one myth is that there is not enough food or land available. There is enough grain being produced today to provide everyone in the world with enough protein and about 3000 calories a day, which is about what the average American consumes. Unfortunately, the world's food supply is not evenly distributed. Countries which already have plenty of food accumulate more, while third world developing countries continue to edge toward starvation.

Another myth is that hunger is caused by overpopulation. In reality, it's usually the other way around. Third World families have large numbers of children so the children can either work in the fields or somehow add to the family's income.

It is particularly significant for the World Food Prize to be awarded in Iowa. Iowa is a world leader in both crop and animal production, and, also, contributes through the manufacturing of agricultural equipment and plant genetics. I imagine that people throughout the world think of Iowa when they think of American agriculture.

Although the World Food Prize has our attention, at least for this week, and the attention on many significant people around the world who deal with hunger and food issues, it will probably not be the lead story on the national news tonight. We are more likely to hear about military conflict in the Mideast, late breaking political news, or the latest developments in the trial of a former football star. To make the World Food Prize more visible, I would suggest that The Youth Institute be further expanded to include more students and teachers. As a small effort on my part, I

will write an article regarding world hunger for my school newspaper, the North High Oracle. If The Youth Institute is expanded to include more students, more people will be made aware of the issue.

According to the 1986 World Bank study *Poverty and Hunger*, the term "food secure" means having access to enough food for an active and healthy life. This means not only that there is enough food available, but that households have the ability to acquire food, either because they produce it themselves or because they have the income to purchase food. Food insecurity, or the absence of these conditions, is a daily fact of life in third world countries. Some countries experience chronic food insecurity, meaning that their populations experience a persistent inability to acquire food and their diets are continuously inadequate. Transitory food insecurity, on the other hand, is a temporary decline in access to food, usually as a result of unstable food prices, decreased food production, or reduction in household income. The feeling of hunger in the stomach of a small child is no doubt the same whether food security is labeled chronic or transitory. It is hard to imagine what it must feel like to not know where the next meal might come from or when the feeling of hunger will go away.

There are, of course, no easy answers for how to increase food security in the world. Agricultural experts work daily to bring improvements to the production of food. We somehow need to see changes in the distribution of food throughout the world. It should be up to the world's political leaders, along with the United Nations, to plan redistribution of the food supply.

Even more important is what could be done to make individuals or communities more self sufficient and, therefore, more food secure. One idea which has proven successful is sponsored by Save the Children, an international relief organization. A loan program is created within small villages. Individuals are allowed to borrow enough money to buy a few head of livestock or enough seeds to complete their planting. The money is repaid, with interest, after the livestock are sold or the crops are harvested. Instead of providing handouts which usually lead to no lasting change, the loan program helps establish a spirit of entrepreneurship which results in real economic security. This approach, called "micro-enterprise," is based on the proverb, "If you give a man a fish, you feed him for a day. If you teach him how to fish, you feed him for a lifetime (Confucius)."

Iowa can and should play a significant role in increasing food security in the world. As a leader in agricultural ecology, Iowa can serve as a model for proper land stewardship throughout the world. Responsible use of fertilizer, pesticides, and herbicides will contribute to food security, both today and in the future. In addition, Iowa can expand the export of technology, including innovation in the manufacturing of farm equipment and the latest developments in plant genetics.

If I wake up tomorrow and read in the paper that a jumbo jet has crashed, killing all aboard, it will be a great tragedy. If I read that 300 jumbo jets crashed, killing all passengers, it will be unbelievable. If 300 jumbo jets were to crash *every day* for the next year, the death toll would be the same as the number of people who will die this year from hunger or hunger related diseases. The problem of world hunger is very real; the solutions much harder to determine. The World Food Prize takes an important step by honoring an individual who has worked hard to better world hunger.

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World Food Prize and Food Security

Food—a necessity for survival, but a commodity whose availability is unequally distributed throughout the world. No one can live without it, yet half a billion people encounter sufferings from starvation and malnutrition each day (*A Global Agenda*, 1993). The problems associated with hunger are of international proportions.

The World Food Prize was created to honor individuals accomplishments in improving the world's food supply. Getting the food to the people involves not only the agricultural sciences and technology, but also the processing, marketing, and nutritional aspects, as well as the political and economic leadership necessary to accomplish the goal of food for all of the world's population. The World Food Prize recognizes achievements in any of the above areas.

He Kang, the 1993 World Food Prize Laureate, stated, "Agriculture is the foundation of a national economy. The number one thing is to feed the people." Agriculture is a basic building block to the advancement of the human race. Martin Jischke, President of Iowa State University, carries this belief further in his statement, "Food is essential...to peace" (*Des Moines Register*, Oct. 15, 1991, pg. 8S). Because of the substantial and critical nature of the world food crisis, the World Food Prize represents a needed effort in reducing the current problems concerning food, and it offers hope for the future.

The World Food Prize is particularly significant to Iowa for several reasons. In past years agriculture was most predominate in Iowa's economy. Although the balance of agriculture and industry in Iowa's economy has leveled, agriculture and food related products rank highest of Iowa's industries. Normally Iowa ranks second in total cash farm income and first nationally from livestock (*Encyclopedia Americana*, 1993, pg. 355).

When he presented the World Food Prize in 1991, Governor Terry Branstad commented, "It is appropriate that it is presented here in the heartland of the agricultural production of this nation. Iowa is the center for food and agriculture" (*Des Moines Register*, Oct. 15, 1991, pg. 7S). Because of the vast number of Iowans who are directly involved with various aspects of agriculture and food production, Iowa is an ideal location for the presentation of the World Food Prize.

The World Food Prize supports technological advancements in agriculture, and Iowa is a good example of how technology has played a role in increasing the yields of agricultural products. Iowa's universities also play a leading role in research and development in the agricultural field, and the World Prize encourages people to enter careers in any of the various agricultural areas.

The World Food Prize needs to become more visible and recognizable in Iowa. One way to achieve this is by getting Iowa's students involved. The World Food Prize could sponsor essay contests in Iowa's schools to promote awareness. World Food Day Fairs could be held in which students display their research, investigations, and new ideas concerning agricultural technologies and the plight of the world's starving populations.

Food security is the goal of developing nations. Before an efficient government can exist, a country must be agriculturally secure. There are many factors that cause a nation to have food

insecurity. These include: rapid population growth, wars, excess food aid, a lack of economic growth, natural disasters, poor technology, and excessive dependence on cash crops. Overfarming, poor soil and seed, and deforestation and erosion are contributing factors to lower food yields. A food secure country is one which has the ability to produce enough to feed its population or have the economic resources to purchase it.

Improving food security in developing nations requires a variety of tactics, attitudes, and implementation. There is not a standard, pat answer for the problem as a whole, but rather circumstances dictate what must be done. Experts disagree as to the specific causes for the world food problem, and so there must be a variety of solutions to satisfy the situation.

Education and technology are two key areas to alleviate the problem. Citizens of developing countries must be taught modern methods of farming, as well as given the resources to obtain necessary equipment to increase yields. However, throwing large amounts of money at the governments of developing nations will not necessarily help. "...a relatively small amount of money can have a tremendous impact when used to encourage a spirit of entrepreneurship rather than distributed as a handout" (*Washington Post*, Aug. 20, 1994, pg. A16).

As the governments of developing nations become more stable, the focus can be on food security rather than on military security. Giving money for food aid directly to governments has not worked in the past because little of the money benefited the individuals who most needed the help.

Iowa can play a significant role in helping developing nations become food secure. Farming towns in Iowa can form partnerships with villages in developing nations. Iowa's universities can use technologies and resources to genetically engineer plants which are suitable for growing in food deprived areas. Iowa industrial leaders in food processing can train citizens in starving countries to discover ways to put raw farm products to diverse uses. Iowa has the opportunity to become a leader in assistance to developing nations.

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Famine in Africa: Many Problems, Little Solutions

The food production for the world has been steadily rising, but the population is multiplying much faster. Africa is an exception though. While their population is rising fast occasional droughts have brought their food production down. Many experts believe that we can keep a world food crisis around the corner, even if the population double by the mid-21st century. Experts also believe that feeding 10 billion people will not be easy for political, economic, and environmental reasons. A world food crisis has started to come around the corner and it is up to us, the younger generation, to keep it from happening.

African agriculture employs more workers and contributed more to the total value of production in Africa than does any other economic activity, but with the steady rise in population the cannot provide enough food for the entire country. About three-fifths of Africa's cultivated land is used for the farmers personal use. These numbers have fallen because more farmers now, produce only cash crops. This shift has been causing problems, such as the food shortages that have occurred in some areas because fewer farmers are growing food crops. In addition, some former farmers have moved to the city to find work. Other such problems are that farmers who only grow cash crops cannot depend on a steady income because of frequent changes on the world market.

Africa's third-world countries of today continue to face serious problems, including poverty, illiteracy, disease, and most of all food shortages. Severe droughts contribute greatly to the food shortages in these third-world countries. What seemed to have been one of the worst droughts in history happened in Africa during the 1980s. An uncountable numbers of Africans died of starvation and related causes. The droughts were particularly harmful in Ethiopia.

There are many symptoms of why Africa is in economic distress, and hunger is one of them. Workers who are weakened by lack of food tend to make them produce less while the population still rises higher and higher. With no food stores, no valuables to sell when a drought or pests hit the food crisis stays season to season while living standards have fallen pathetically low.

Overall, agricultural productivity in Africa is low for several reasons. Farmers work small plots with in efficient methods on thin, poor soil. Most topsoil is washed away by heavy rains and other topsoil is ruined by droughts.

Africa has few solutions to its many problems and desperately needs the aid of foreign countries. America being one of the most important aids will get most of its crops from the Midwest states. Iowa is the main grain producer in the U.S. and most of the crops will be exported to third-world countries in Africa. But like an old saying says, "If you give a man a fish he can eat for a day, but if you teach a man to fish he can eat for a life time." So if we educated the Africans instead of just handing them our help the third-world countries will have a chance to survive. The young scientist of the world need to be dedicated to educating third-world farmers and bringing this famine stricken world, back to a wonderful place to live, anywhere!

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The World Food Prize: Food Security and Iowa

Food For Thought

Food is the common denominator of our human experience. No matter our culture, our location, or economic status, every person understands the connection between life and food. However, is everyone aware of this connection? In a society where thousands of ideas are flashed at us every second, we need to be reminded of the dangers when our basic human needs are not met. Attention must be brought to a problem before solutions can be discovered. A food prize which recognizes individuals who have advanced human development by improving the quality, quantity, or availability of food in the world brings such attention to the problem and promotes the seeking of solutions.

Why should Iowa be a key element in building global food security? We are blessed with the soil and climate to produce an abundant nutritious food supply. However, it is not only the natural resources that exist here; it is the agricultural technology, educational resources and an attitude which sees a link between these two. That attitude understands the necessary connection between the fertility of the earth and the need to preserve its integrity.

Iowa has acted on this awareness and developed new techniques. This state was one of the first to move to no-till farming which protects the soil erosion and can decrease production costs. Our agricultural industries have developed and are developing herbicides which break down and won't pollute the soil and water supply. These innovations are examples of the necessary cooperation among farmers, university researchers and related businesses.

As a state in which major economic segments are based on food production, it should be self-evident that Iowa is concerned about how to promote a food prize. To make such a prize visible and recognizable in this state, one would usually think of using the mass media as a promoter and publicist. Grass roots publicists are often better than the best mass media. Students, educators, seed corn developers, bio-engineers, farmers, farm implement dealers, agricultural extension agents, truck drivers, grain elevator operators, and all those involved in the production and distribution of food need to be informed of their role as promoters of this important award. Many of these groups have professional organizations that distribute periodic newsletters. The weekly publications of communities around the state provide another outlet. Information about this award and promotion of it through these publications could create a synergistic information base. The more different places and times one hears about an event or award, the greater the credibility such an award has. Invitations to members of these various groups to attend the World Food Prize ceremonies would add another avenue for involvement in the award.

The main goal of the World Food Prize is to promote food security. Food security could be defined as the ability to grow, harvest and process the food necessary for a population to survive through all situations including natural disasters, increases in population and regional conflicts. This security includes having a surplus to ensure planting for the next year.

Does improving food security in developing countries mean slowing the rate of increase for the need for food, or increasing the food supply? Can we talk about food security without recognizing the role of population growth? How is a developing country's food security related to food security in the "developed world"? Does increasing the food supply merely exacerbate the problem by increasing the problem? Perhaps increasing the food supply doesn't merely mean more tons of grain, it can also mean increasing the nutritional value of what is produced and more effective use of the land. Food security means an individual is not malnourished or minimally nourished, but healthy. This kind of food security means the individual can grow not just physically, but mentally, emotionally and spiritually as well. None of this kind of growth can occur in individuals who are hungry. "Hungry people are in no position to consider the long-term health effects of Earth's life-support systems."⁽¹⁾ The healthy individual will be able to make contributions to world security in ways that her starving cousin cannot conceive. Where do the answers to the problems of food security lie?

Lester Brown in the World Watch Institute's *State of the World* report bluntly describes the problem and poses potential solutions.

Seldom has the world faced an unfolding emergency whose dimensions are clear as the growing imbalance between food and people. The new information on the earth's carrying capacity bring with it a responsibility to educate and to act that, until recently did not exist.⁽²⁾

There needs to be a two pronged attack to improve food security in developing nations. First, we cannot ignore the immediate needs of the present population. New farming techniques which protect the soil of developing countries while increasing the productivity of the land need to be implemented. Agricultural techniques that are currently being pursued, can help us cope with the present food crisis, but will not provide food security in the future.

As Lester Brown so concisely states, "a responsibility to educate" is an absolute necessity for long term solutions. To find these solutions, all experts seem to agree that dealing with the projected population growth is key. In concurrence with Brown, many authorities agree that an essential element in defusing the population explosion is education. Research has shown that an increase in literacy is followed by a decrease in fertility rates.

Iowa is unique in the respect that it can provide expertise in both the agricultural and educational aspects of developing food security. The combined efforts of university research and agricultural industries provide and promote new and innovative methods to harvest more wealth from the land. Historically Iowa has a tradition of openly sharing its agricultural expertise. Our continued dedication to this tradition needs to be part of our role in expanding food security.

Along with a strong agricultural foundation, Iowa is known for its dedication to excellence in education. As part of a long term response to expanding food security, Iowa can aid in the advancement of literacy in developing countries. Providing for advancement of literacy lead to increased use of family planning, in addition to the use of better agricultural techniques. These two inextricably intertwined plans not only represent a plausible goal for Iowa's involvement in food security, but also represent our strengths as a state. Our universities, our agricultural base and our educators can all have a part in supporting those who are continuing to advance human development by improving the quality, quantity, or availability of food in the world.

References

1. Erlich, Ann and Paul. *Population and Development Review*. Vol. 19. No.1. p.26. 1993
2. Brown, Lester. *State of the World*. p. 196. World Watch Institute. 1994.

Walter Goodwin, Jr., Student Participant
West High School
Sioux City, Iowa

The Cry of the Poor, the Hungry

"Wake up, Willie. It's 5:00 a.m. Time to go out and start planting the fields," yells Vessie, his wife, as she aggressively tugs at his cotton long-john he wears as his night clothing. Willie gets up, wakes up his oldest son, Willie, Jr. and they get dressed and go off, ready to work in the fields so that they may have food to eat for the rest of the week and maybe even some extra coins in the pocket so that he and his wife can catch a movie.

Scenes like this are constantly played out in the lives of farmers. Getting up in the morning and working in the fields so that their families can have food on the table and so that they can have a little security for their family.

As we take a look at the over abundance of food in the US often times we wonder why are there people on the streets with no food to eat? Little boys and little girls, families of four and five, are living in a car, with only a little to eat.

In America, there are soup kitchens, missions, and other places for the hungry to go grab a quick meal, but what about all the people in the Third World Developing countries. In the last year we've had people in countries like Somalia who have no clean water, no decent food to eat.

Is it ironic that the World Food Prize is based in Iowa, the bread basket of a nation that produces more food than it can consume? Isn't it ironic that this nation pays landowners to keep land out of production when we have starvation in many Third World countries? Americans, on the whole, are an obese society—in a sense, they consume more food than is healthy.

The World Food Prize is important because it has targeted a pressing world problem that demands immediate attention from not only those who suffer the pangs of hunger first hand but also from those of us whose only identification with the suffering of hunger is the occasional picture on CNN or in the daily newspaper.

The world food Prize is important because it tells and teaches the American youth, as well as the old, about the importance of having food security and the importance of looking out for each other, especially for those that might be less fortunate than we in America.

It is imperative that more know about the World Food Prize and its center in Iowa. Sessions such as this World Food Prize Youth Institute will call attention to world hunger. Students and teachers can serve as ambassadors, carrying the message back to their home communities, thereby spreading the word. Hopefully participants of this World Food Prize Youth Institute will conduct assemblies in high school to inform students and faculty of this world hunger crisis. Committees of students and faculty could be formed that would perpetuate the commitment originating from this World Food Prize Youth Institute. This committee could involve community organizations with the hunger crisis.

More conferences such as this could be held to let more people know about the Prize. Perhaps there could be a volunteer program started which could send students from Iowa representing the World Food Prize to different places to actually help in the humanitarian efforts.

Recent food crises throughout the world such as those in Somalia have proven to the world that

the solution to the problem is not to supply food temporarily to stave off the hunger. Food security is not just knowing that tonight or tomorrow one will have food. Food security is knowing that food for the family will be there today, tomorrow, next week, next month, and next year. Then if one has enough to feed his family he can share his food with others less fortunate by donating to food banks, missions, or soup kitchens.

Solving the problem of food security involves technology, training, and experimentation. Whatever the cause of the hunger—unchecked population growth, civil wars, economic stagnation, weather or natural calamities, inept food aid—the hunger is real and must be dealt with. Farming practices that preserve the land and increase productivity must be fostered. Farmers and crop experts could be sent to these starving nations to teach the inhabitants about crop rotation and irrigation. These ambassadors could teach the local farmers how to plant and harvest crops more efficiently.

Nations could extend a helping hand, not a hand out, to these poverty-stricken countries. From our overabundance of food supplies in America, we could send grain products like flour and wheat. We're reminded of the parable of Jesus' feeding the people with two fish and five loaves of bread. If he could do that, just think what we could do—think of all the lives that could be saved.

It is sad to think of our own world of plenty when we look at little Somalian children on the street taking baths in sewage, unable to eat any of their cattle because they fear the cattle may be diseased. These children are dying in the streets of malnutrition while we are paying farmers in the Midwest not to produce crops on their land.

If the world could send over more food, more medical supplies, volunteers to help these people, perhaps we wouldn't have to see these scenes of innocent children of these hungry nations with bloated stomachs from malnutrition.

Iowa has an over abundance of crops and livestock; we also have people in this state that know how to farm and to raise livestock. With the resources in Iowa we can teach and show other people proper procedures to grow crops and raise livestock.

It is because of such abundance of food that Iowa should be responsible for the starving of the world. When we have so much, why should so many have so little? Our commitment has to be more than a few cans of food donated to a local food drive or a five-dollar donation to the Salvation Army. We, as Iowans, as Americans, must be dedicated to finding a solution.

In order to help other countries, we must take care of home first. Many people believe in the saying "Charity begins at home, then it can spread abroad". In order to help people, we have to come up with steps that can help. First, PREPARE, we must prepare ourselves for the tasks ahead. We never know what to expect, but we must be ready for troublesome times. The race is not given to the swift, neither is it given to the strong, but to the ones who are willing to endure until the end.

We must prepare: then we must COMMUNICATE. We must talk to those in oppressed countries; we must listen to their needs, listen to their chilling stories of sorrows and hopes. We must listen to their solutions; then, in return, they must be willing to listen to us as to what we can do to help and what we need from them.

Next we must INTERACT. We must interact with one another; we must go visit them and they must come visit us. We must be able to open ourselves to them, to greet them with a smile, offer them a bit to eat, and then get down to the business of solving our common problem: WORLD HUNGER. When we allow ourselves to take these simple but difficult steps—prepare, communicate, interact—then we can begin to tackle the problems of world food security in these developing countries.

We have presented to you bits of information and opinions on what can be done to help these developing countries. We must put ourselves to work, must be determined in our minds and souls that we are willing to help those that may be less fortunate than we are, to help them with food to eat and clean water to drink. Then when we do this, we can all join hands together, young and old, black and white, Jew, Gentile, poor, and wealthy. And say in a loud voice...**TOGETHER WE CAN HELP EACH OTHER!**

The World Food Prize Council of Advisors

John Ruan

Chairman
The World Food Prize Foundation
Des Moines, Iowa, USA

Norman E. Borlaug, Ph.D.

Nobel Peace Prize Laureate
President, Sasakawa Africa Association
Former Director, Wheat--CIMMYT
Mexico City, Mexico

The Honorable Jimmy Carter

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Former Head of State of Nigeria
Chairman, Africa Leadership Forum
Ota, Ogun State, Nigeria

Herman C. Kilpper

Executive Director
The World Food Prize Foundation
Des Moines, Iowa, USA

THE WORLD FOOD PRIZE YOUTH INSTITUTE

October 19, 1995

Site:

Des Moines

Iowa National Guard STARC Armory
Camp Dodge
Auditorium
6100 NW 78th Avenue
Johnston, IA 50131

Cedar Rapids

Kirkwood Community College
Classroom #2 / 203B
Linn Hall
6301 Kirkwood Blvd, SW
Cedar Rapids, IA 52406

Bettendorf

Scott Community College
Classroom #1, Room 232
500 Belmont Rd.
Bettendorf, IA 52722

Observing Site

Brenton Center for Agricultural
Instruction and Technical Transfer
Iowa State University
Ames, Iowa

Schools:

Algona High School
Atlantic High School
BCIG High School, Ida Grove
Central Community School, Elkader
Lamoni High School
Mason City High School
North High School, Des Moines
Regis High School, Cedar Rapids
Valley High School, West Des Moines
West High School, Sioux City

Cedar Falls High School
Hampton High School
Hempstead High School, Dubuque
Iowa City High School

Bettendorf High School
Burlington High School
Central High School, Davenport
Keokuk High School

For Additional Information Contact:

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Des Moines, Iowa 50309 USA
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Youth Institute Schedule of Events October 19, 1995

- 8:00 a.m. Registration and Continental Breakfast. "Site" hosts will welcome and greet students, teachers, observers and World Food Prize Foundation representatives.
- 8:45 a.m. Institute participants to be seated and prepared to begin the program.
- (On-Line)**
9:00 a.m. Live from Camp Dodge -- all sites welcomed from the World Food Prize Foundation and Iowa State University. Introduction of the World Food Prize Laureate. Interactive introductions - all students
- (Off-Line)**
9:30 a.m. Comments from World Food Prize Foundation representatives/view World Food Prize video.
- 9:45 a.m. Students will present their discussion papers and engage in dialogue with the staff and teachers.
- 11:45 a.m. Students summarize all their comments in order to make a live presentation to all the sites during the afternoon session.
- 12:30 p.m. Luncheon for participants.
- 1:20 p.m. Participants will be ready to begin the afternoon program.
- (On-Line)**
1:30 p.m. Laureate addresses all participants.
- 2:00 p.m. Students present summations from their morning discussions from each of the four sites (20 minutes per site).
- (Off-Line)**
3:30 p.m. Wrap-up at each site and adjourn.

1995 World Food Prize Youth Institute Panel Members

Moderator:

Robert C. Havener *
President Emeritus, Winrock International

Respondents:

Dr. Hans R. Herren
1995 World Food Prize Laureate

John Ruan *
Chairman of the World Food Prize Foundation

Dr. Norman Borlaug *
1970 Nobel Peace Prize Laureate
President, Sasakawa Africa Association

A. S. Clausi *
Chairman, Institute of Food Technologists Foundation
Senior Vice President, Retired, General Foods Corporation

Pekka Linko, Ph.D. *
Professor, Biotechnology and Food Engineering,
Helsinki University of Technology

Dr. John Niederhauser
1990 World Food Prize Laureate

* Member of The World Food Prize Council of Advisors

Theme originally given to students:

Food Security through Crop Protection

Last year we addressed the broad theme of *Food Security in Third World Developing Countries*: asking what does it mean to be food secure and what can be done to improve food security in developing countries?

This year we will continue that theme, but with a focus on the continent of Africa and more specifically on the sub-Saharan countries...34 countries covering an area approximately 1 1/2 times the size of the United States, occupied by more than 200 million people.

Most of the land in this area is used by small farmers...poor farmers...holding less than 10 hectares of land...mostly in remote locations. Crop selection is limited by the agro-ecosystems of the area and, because the farmers are poor, the ability to grow crops is limited. These small farmers can afford few inputs...they lack in any scientific knowledge...and they generally have a fear of change from known agronomic practices.

This brief background introduces this year's theme: **Food Security through Crop Protection**:

- What is meant by crop protection?
- Why is it important?
- What can be done to protect the crops grown by resource poor farmers in Africa?

Your paper should provide a dimension of the food problems in this large area of Africa...it should identify the staple food crops...and then discuss the impact that crop protection strategies can have on the food supply and on the environment. The paper should also indicate a basic understanding of biological control programs and the positive implications of integrated pest management for the future of sustainable agriculture in Africa and worldwide.

The following papers are presented as part of the 1995 World Food Prize Youth Institute by students. They are listed in alphabetical order by participating high school, by ICN site:

Iowa National Guard STARC Armory:

1995 World Food Prize: Discussion Paper

Michelle Reemtsma, Algona High School

Using Iowa's Agricultural Past to Protect Sub-Saharan Africa's Agricultural Future

Sara Sothman and Amanda Williams, Atlantic High School

Integrated Management: The Key to Sub-Saharan Agriculture

Kim Hamann, Battle Creek-Ida Grove High School

Food Security Through Crop Protection

Matt, Hahn, Central Community High School, Elkader

Sustainable Agriculture and Food Security

Eric Maroldo, Lamoni High School

Growing Food In Africa

Dianna Gatton, Mason City High School

Crop Protection in Sub-Saharan Africa

Andrew Choquette, North High School

Food Security Through Crop Protection Sub-Saharan Africa

Anna McColley, Regis High School, Cedar Rapids

Change, Women, & Food Security

Adrienne Clark, Valley High School

World Food Prize Essay

Jeremy Taylor, West High School

Scott Community College, Bettendorf

Crop Protection in Africa

Scott Woodhouse, Bettendorf High School

Food Security Through Crop Protection

Amanda Tratchel, Burlington Community High School

African Food Empowerment-Values and the Global Link

Melinda Witherow, Davenport Central High School

Crop Protection Through Pest Management

Patrick J. Marshall, Keokuk Senior High School

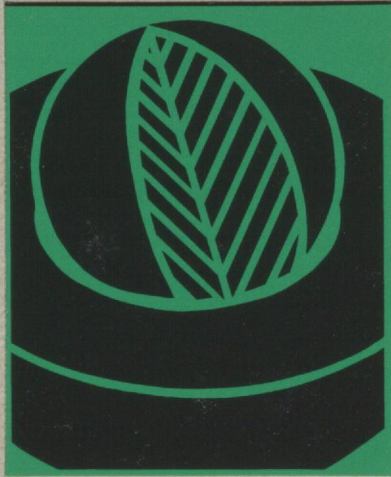
Kirkwood Community College, Cedar Rapids

Securing Africa's Food Supply through Crop Protection and Sustainable Agriculture
Bharath Pola, Cedar Falls High School

Sustainable Agriculture and Food Security
Tyler Strother, Hampton-Dumont Community High School

Food Security through Crop Protection
Stephanie Hammel, Hempstead High School, Dubuque

Africa: A Starving Continent in Disarray
Mathew Rude, Iowa City High School





THE WORLD
FOOD PRIZE

Hans Rudolf Herren
1995 Laureate

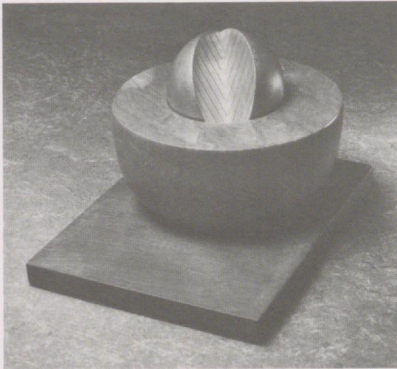
A Prize for the World

This year—1995—marks the ninth awarding of The World Food Prize. The World Food Prize is the foremost international award recognizing—without regard to race, religion, nationality or political beliefs—the achievements of individuals who have advanced human development by improving the quality, quantity, or availability of food in the world.

The prize recognizes contributions in any field involved in the world food supply—food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, and the social sciences.

The World Food Prize emphasizes the importance of a nutritious and sustainable food supply for all people. By honoring those who have worked successfully toward this goal, the prize calls attention to what has been done to improve the world food supply, and to what can be accomplished in the future.

The laureate receives \$200,000 and a sculpture created by world-renowned designer Saul Bass.



The commemorative sculpture of The World Food Prize was created by world-renowned designer Saul Bass. This sculpture symbolizes the world, its food and the nourishment of its peoples.

Why the Prize Was Created

Norman E. Borlaug, winner of the Nobel Peace Prize in 1970 for his work in world agriculture, envisioned a prize that would honor those who have made significant and measurable contributions to improving the world's food supply. Beyond recognizing these people for their personal accomplishments, he saw the prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was created.

The Prize Program

The World Food Prize is sponsored by The World Food Prize Foundation, established by John Ruan, and is located in Des Moines, Iowa, USA.

The prize is guided by a Council of Advisors in the establishment of policy and in the annual review of the prize.

The Iowa State University College of Agriculture in Ames, Iowa, serves as secretariat for the prize. Each year, more than 3,500 institutions and organizations around the world are invited to nominate candidates for the prize. The secretariat reviews all nominations for appropriateness and completeness, and forwards them to the selection committee, which selects the candidate deemed most worthy of the award according to the prize's objectives.

The selection committee is composed of nine distinguished individuals who are knowledgeable about various aspects of nutrition and food production, processing and distribution, including research, policy development, and business management. Members of the selection committee remain anonymous, except for Dr. Norman Borlaug, the group's chairman.

Dr. Hans Rudolf Herren



Hans Herren with the Togolese Director of Agriculture and the Head of the Crop Protection Services at the first cassava mealybug natural enemies release in Togo in 1983.

Dr. Hans Rudolf Herren, recipient of the 1995 World Food Prize, was only 31 years old when he took a new job in Africa and landed right in the middle of an unprecedented crisis. The time was October, 1979. The place was Ibadan, Nigeria. The crisis came in the form of a tiny arthropod pest, *Phenacoccus maniboti*, the cassava mealybug.

Since the late 16th Century, when Portuguese traders brought the hardy little shrub from its native South America, cassava has flourished in tropical Africa. Across a vast belt extending from Senegal and Angola in the west to Madagascar in the east, cassava is grown by subsistence farmers in a wide range of environmental conditions. Its edible roots are a staple in most of sub-Saharan Africa, providing up to half the daily calories of 200 million people. Because the roots can remain in the ground in edible condition for up to two years, the hardy cassava has earned a reputation as “the famine reserve plant.”

Therein was the irony of the situation faced by the young, newly-arrived Swiss entomologist. The mealybug was devastating the cassava plant, destroying as much as 80% of the crop in some areas, and widespread famine was a real possibility. The crisis threatened to become an environmental disaster as well. The government of Zaire, where the cassava mealybug was first observed, was promoting the widespread application of pesticides. With the pest spreading up to 300 kilometers a year, others were certain to also reach for a solution in chemicals.

Dr. Herren, a self-described “eco-freak” who was trained as an expert in biological control in his native Switzerland and at the University of California at Berkeley where he pursued post-doctoral studies, strongly believed that pesticides offered no long-term hope, making a bad situation only worse.

The solution he proposed, however, carried its own risks. Dr. Herren sought to find the cassava mealybug in its native habitat—somewhere in the vast area between southern California and northern Argentina—and then identify its natural enemies and import them to Africa. Such a plan could be extremely time-consuming. Moreover, no one had ever attempted a biological control program on the scale proposed by Dr. Herren. It was an ambitious

Dr. Herren’s work exemplifies the bold and innovative leadership that the World Food Prize was established to honor. He successfully used nature to combat a potential natural disaster—a disaster which threatened to devastate the most important staple in the daily diet of some 200 million people. DR. NORMAN E. BORLAUG, NOBEL PEACE PRIZE LAUREATE



This map shows the relative areas of these countries within the cassava belt: 1-United States, 2-India, 3-Great Britain, 4-Japan and 5-New Zealand.

Below left, a healthy cassava field in Southwestern Nigeria.

Below right, a cassava field in Malawi devastated by the mealybug invasion. In addition to direct loss of root yield, the next season crop is also jeopardized, as stem cuttings from healthy plants are needed for planting the new crop. In many areas, cassava simply disappeared because of lack of planting material. Projects had to be established to propagate new cuttings to reestablish the crop in such areas. This opportunity has often been used to introduce new, high yielding and disease tolerant varieties.

undertaking, especially since the entire staff of the biological control program at the International Institute of Tropical Agriculture (IITA) in Nigeria consisted of one person: Hans Herren.

Until the early 1970s, when the cassava mealybug arrived in Africa on vegetatively-propagated material (sticks of cassava by which the crop is planted) in the suitcase of an unwitting traveler, no one had known of it nor, for obvious reasons, of its potential for devastation. In South America, natural predators and parasitoids had effectively prevented the pest from spreading. In Africa, the cassava mealybug had no natural enemy.

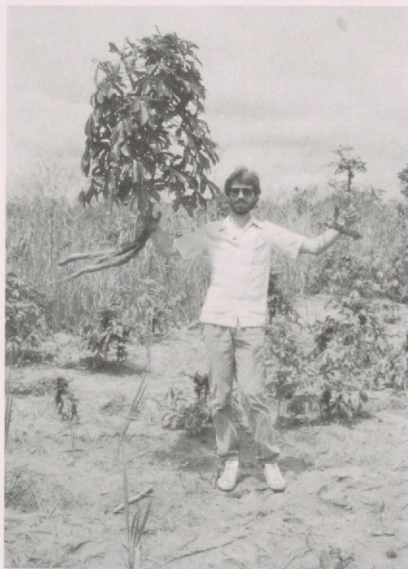
No one disputed the sound scientific logic of the young entomologist's plan. Biological control programs have been used effectively for more than a century. In 1888 the vedalia beetle was brought from Australia to fight the spread of cottony cushion scale in California's citrus groves. The beetle was a spectacular success.

Somewhere, Dr. Herren knew, there lived a predator or a parasitoid with a taste for *P. maniboti*. Working from the corner of an IITA greenhouse, Dr. Herren assembled every resource available to him. He sought assistance, both scientific and financial, from IITA and other facilities affiliated with the Consultative Group on International Agricultural Research, and from academic institutions and public agencies on four continents.

Then, in 1981, Dr. Herren had his first big break. Dr. Anthony Bellotti, an entomologist and colleague at the International Center for Tropical Agriculture in Columbia, a sister institute of IITA, discovered the cassava mealybug while walking through a field in Paraguay, one of the five areas selected for exploration between Southern California and Argentina likely to harbor the mealybug and its natural enemies.



President Carter and former First Lady visiting the IITA-Biological Control Center in Cotonou, Republic of Benin in 1983. They are being shown the cassava plant production on "artificial trees", the first step of the cassava mealybug natural enemies mass-rearing operation. (Hans Herren is on the left.)



Hans Herren holding, on the left, a young undamaged cassava plant and, on the right, a cassava plant of the same age infested with mealybugs. Note that there are no starchy roots developing on the infested plant.



Epidinocarsis lopezi laying an egg into a mealybug. The *E. lopezi* larvae will develop inside the mealybug, eating its guts. Within two weeks of oviposition, a new wasp will emerge and continue the task of killing more mealybugs. *E. lopezi* is very specific to the cassava mealybug and cannot develop on any other mealybug and so does not endanger any other insect species.



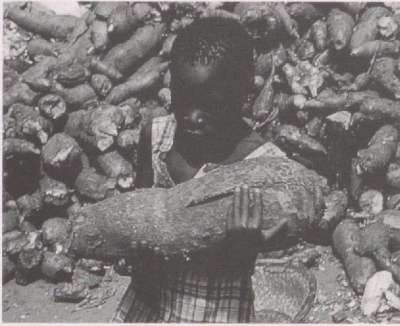
Dr. Herren immediately dispatched entomologists from IITA and the International Institute of Biological Control (IIBC) to the area in search of the mealybug's enemy. Several potential predators were collected and sent to the IIBC's worldwide quarantine facility located in Great Britain.

The first natural enemy processed through quarantine was *Epidinocarsis lopezi*, a wasp the size of a match head which kills the cassava mealybug—and only the cassava mealybug—by laying eggs into the mealybugs (the hatching larvae eat the hosts' guts) and by feeding on them.

Dr. Herren had the natural enemy he wanted, but big problems still confronted him. First, there was the question of whether *E. lopezi* (it has no common name) could survive in the African environment. That was answered in 1982, when Dr. Herren found that wasps he had released in experimental cassava fields at IITA had survived the rainy season, multiplying over several generations. The wasps not only established themselves, they spread rapidly. Within a few months of their release, Dr. Herren found them attacking cassava mealybugs as far as three miles away.

The second, more complicated problem was how to distribute *E. lopezi* over the vast area infested with cassava mealybugs in Africa, an area half again as large as the continental United States.

By 1984, Dr. Herren, working with a small but growing biological control staff, had devised a plan to breed millions of wasps and spread them across Africa from an airplane flying 200 miles an hour. Then he was confronted with a new problem: money.



Child holding a precious cassava root. Cassava provides over 50% of the caloric intake of more than 200 million Africans and is an important reserve food in time of drought and other natural disasters of war.

Right, a woman carrying cassava leaves which are consumed in many countries. They provide a protein rich complement to the starchy roots.



African woman harvesting cassava roots.

“I asked the donor community for \$30 million for five years,” he recalled in an interview with the Massachusetts Institute of Technology Alumni Association Technology Review. “People gave me a big laugh and said the project was too grandiose”.

“When California has a little medfly problem, it spends \$150 million in one year on chemicals. California is a dot on the map compared to the extent of cassava mealybug infestation in Africa, and cannot be compared in terms of the human aspect of the problem”.

Eventually Dr. Herren convinced donors in North America (Canada: CIDA and IDRC) and Europe (Switzerland: SDC; Germany: BMZ and GTZ; Austria, The Netherlands: DGIS; Norway: NORAD; Denmark: DANIDA; Sweden: SIDA and SAREC; as well as Italy and the UN system: IFAD and UNDP) to provide \$20 million over 12 years, and by 1986 he was spreading

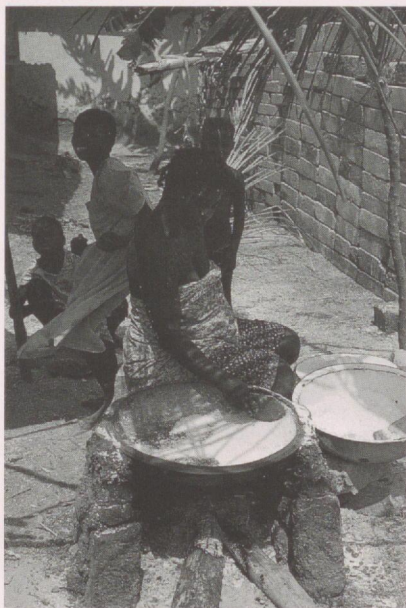
Dr. Herren's program teaches an important lesson, one which all men and women involved in the production, improvement, distribution and protection of food should recognize.

It is this: The most effective and environmentally sound agricultural programs may also be the most economic. Sustainable agriculture need not be viewed as an indulgence that only well-educated farmers in wealthy nations can afford to practice. It may well be the most economic and efficient answer to the agricultural problems of farmers in developing countries.

The food supply in Africa is under constant pressure. Population growth, ecological limitations and political uncertainties—one only need to look at the numerous civil wars that currently wrack the continent—all work to undermine the basic human right of adequate daily nutrition for all human beings.

There are other problems. African farmers are poor. They work small plots of land with little benefit of high technology. The scientific advances available to farmers in the industrialized world are mostly unaffordable to them.

Dr. Herren's work speaks to these concerns. His effort to save the cassava crop was achieved with economic efficiency and with virtually no disruption to the everyday practices of the African farmer. Moreover, his goal was achieved through natural means, without disruption to the environment. THE HORORABLE JIMMY CARTER



Cassava can be eaten in a multitude of ways. Here cassava is prepared into "gari." For this preparation, the cassava roots are peeled, fermented to remove all traces of HCN (a poison occurring in bitter cassava but not in sweet cassava) dried and fried. The gari is then mixed with water to create a sort of mash or pap, which is eaten alone or with meat, fish and vegetable sauces.

100 wasps per second from an airplane flying across the continent's mid-section, in addition to numerous releases from the ground.

Any doubts about his plan's effectiveness were rapidly dispelled. Within five months, wasps in one test area had spread as far as 120 miles. Over the next seven years, Dr. Herren and his team effectively eliminated the cassava mealybug problem in 30 countries.

Dozens of scientists, hundreds of employees and more than 100 research and training institutions worldwide now assist in biological control programs initiated by Dr. Herren and the team of scientists he assembled at IITA.

Dr. Herren is now Director General of the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya, and is a leading proponent for the development of biological controls and other ecologically sound pest and vector management methods throughout Africa and the tropics.

Dr. Norman Borlaug, the father of the green revolution and Nobel Peace Prize winner who conceived the World Food Prize, said Dr. Herren's "bold and highly successful" biological control program has spared millions of lives and saved billions of dollars.

"The World Food Prize was designed to honor those people whose work has helped increase the quality, quantity or availability of the world's food supply," Borlaug commented. "To improve and protect the world's food is both one of the highest and most basic of callings. Dr. Herren has answered that call in an exemplary manner."

The Cassava Story

Cassava roots are processed into many different products. One of the most common products is gari a dehydrated, grainy flour with high starch content that, except for size, resembles tapioca. Gari mixed with water is a basic source of carbohydrates.

The most important traditional culinary preparations of cassava in Africa are boiled/roasted roots, fufu (cassava flour stirred with boiled water over a low-heat fire to give a stiff dough), eba (gari soaked in hot water to give thick porridge) and chickwangu (steamed fermented pulp wrapped in leaves).

Cassava is the staple diet of more than 200 million Africans. It can not only grow and survive under harsh conditions, but its edible roots can remain in the ground for up to 2 years and provide food when other crops fail.

The cassava plant is a one to three meter high, woody shrub which produces large elongated starchy roots. The roots must be used within three to four days after harvesting. Processing is required to remove cyanide before roots and leaves are consumed. Cassava roots are prepared in many ways, depending on local customs and preferences, and form the basic carbohydrate element of the diet in much the same way rice and potatoes do in other regions.

Because of its efficient production of food energy, year-round availability, tolerance to extreme stress conditions, and suitability for present farming and food systems in Africa, cassava will continue to play a major role in efforts to improve the African food supply.



Cassava roots are peeled, then soaked in water for two to three days for the fermentation process, during which the cyanide which occurs naturally in the bitter cassava root is removed.



After the fermentation process the roots are air dried and then fried to remove all moisture and allow for safe storing.



After the drying process cassava is sifted to remove the fibers before it is fried.



Cassava farmer in Zaire showing harvested cassava leaves which are widely used as a vegetable relish or as a component of soups and stews and are an excellent protein source to accompany a carbohydrate rich meal prepared from the cassava roots.

Curriculum Vitae



Hans Rudolf Herren

Nationality

Swiss

Born

November 30, 1947

Family

Married, three children

Job Title

*Chief Executive and Director General
International Institute of Insect Physiology
and Ecology (ICIPE)*

Addresses

*ICIPE
PO Box 30772
Nairobi, Kenya
Tel: 254 2 861686 (office)
Fax: 254 2 803360*

Education

College

*Humboldtium
Bern, Switzerland
1965 to 1968 (B.Sc)*

University

*Federal Institute of Technology
Zurich, Switzerland
1969 to 1973*

*(M.Sc. in Agric. Sciences; Minor: Plant
Breeding and Major: Crop Protection)*

1973 to 1977

*(Ph.D., Biological Control of the Larch Bud
Moth in the Engadine Valley)*

Languages

French, German and English

Professional Memberships

Entomological Society of America

African Association of Insect Scientists

*International Organization of Biological
Control*

International Society for Tropical Root Crops

New York Academy of Science

American Institute of Biological Sciences

*American Association for the Advancement
of Science*

Other Professional Functions

*Member of the Editorial Board of Biological
Control Science and Technology*

*Scientific Advisor to the International
Foundation for Science in Sweden*

*Chairman of the Academic Board of the African
Regional Post-graduate Programme in Insect
Sciences*

*Member of FAO Panel of Experts on
Trypanosomiasis Programme*

Awards

*Post-doc fellowship award from the Swiss
National Science Foundation (1977)*

*D. Plucknet Award for the best paper at the
International Conference of Tropical Root and
Tuber Crops (1984)*

*Parasitis 86 Award for the planning and
implementation of the world's largest biological
control project (1986)*

*King Baudoin Award for research and control of
the cassava mealybug (presented jointly to IITA
and CLAT)*

*Sir and Lady Rank Prize for Nutrition.
Awarded 28 February 1991 by Mrs. M.
Thatcher in London*

*Merit Award for Outstanding Service to Crop
Protection for the XII International Plant
Protection Congress, Rio de Janeiro, August
1991.*

*Kilby Award for Extraordinary Contribution to
Society through Science, Technology, Innovation,
Invention and Education. Dallas, May 1995.*

Positions Held

*International Institute of Insect Physiology
and Ecology (ICIPE)*

*Chief Executive and Director General,
September 1994 to present*

*International Institute of Tropical Agriculture
(IITA)*

*Director, Plant Health Management
Division
1992 - August 1994*

*Director, Biological Control Program
1988 - 1991*

*Unit Head, Biological Control
1986 - 1987*

*Leader, Biological Control Project
October 1979 - 1985*

*University of California Berkeley,
post-doctorate fellow, Biological Control
Division, 1977 - 1979*

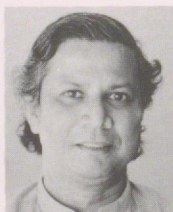
While we today honor and admire Dr. Herren's achievement, we should also be on guard against complacency. Vast challenges still face all of us involved in the production, distribution and protection of food.

The world's population continues to explode and the amount of land in cultivation continues to shrink. Brilliant scientists and industrious farmers cannot forever put off the day of reckoning posed by these underlying trends.

As we praise Dr. Herren and celebrate his achievement, let us renew our determination to address these great challenges with realism, imagination and courage.

DR. NORMAN E. BORLAUG, CHAIRMAN, WORLD FOOD PRIZE SELECTION COMMITTEE

Previous Laureates



Dr. Muhammad Yunus

Dr. Mubammad Yunus 1994

Dr. Muhammad Yunus, founder of the Grameen Bank in Bangladesh, developed innovative small loan programs for the poor, providing millions of people throughout the world access to food and nutrition for the first time in their lives.



He Kang

He Kang 1993

He Kang, former Minister of Agriculture of the Peoples's Republic of China, provided the leadership to implement the agricultural reforms that caused agricultural output in the early 1980's to grow in excess of eight percent per year and made China self-sufficient in basic food for the first time in modern history.



Dr. Edward F. Knipling



Dr. Raymond C. Bushland

Dr. Edward F. Knipling 1992

Dr. Raymond C. Bushland 1992 (deceased)

Edward F. Knipling and Raymond C. Bushland, a team of entomologists, developed the Sterile Insect Technique, an environmentally-friendly method of controlling or eradicating insect parasites that threaten vast sources of food, especially livestock and wildlife populations.



Dr. Nevin S. Scrimshaw

Dr. Nevin S. Scrimshaw 1991

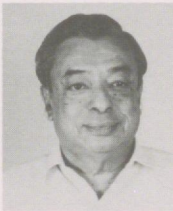
Nutritionist Nevin S. Scrimshaw developed the principle for low-cost, protein-rich food products to help prevent malnutrition in developing countries.



Dr. John S. Niederhauser

Dr. John S. Niederhauser 1990

Plant scientist John S. Niederhauser discovered and utilized a durable resistance to the potato late blight disease, which boosted the food supply and improved nutrition for many nations.



Dr. Verghese Kurien

Dr. Verghese Kurien 1989

Verghese Kurien turned the milksheds of India into cooperatives that produce, process, and market milk in urban centers of that country.



Dr. Robert F. Chandler, Jr.

Dr. Robert F. Chandler, Jr. 1988

Robert F. Chandler, Jr. guided the development and distribution of new varieties of rice with double and triple the yield potential of traditional rice.



Dr. M. S. Swaminathan

Dr. M. S. Swaminathan 1987

M. S. Swaminathan, architect of India's "Green Revolution," led the introduction of high-yielding wheat and rice to Indian farmers.

And by their fruits...the world shall know them.

The World Food Prize Council of Advisors



John Ruan

Chairman
The World Food Prize Foundation
Des Moines, Iowa, USA

Norman E. Borlaug, Ph.D.

Nobel Peace Prize Laureate
President, Sasakawa Africa Association
Former Director, Wheat--CIMMYT
Mexico City, Mexico

The Honorable Jimmy Carter

Chairman
The Carter Center
Atlanta, Georgia, USA

A. S. Clausi

Chairman
Institute of Food Technologists
Foundation
Senior Vice President, Ret.
General Foods Corporation
Cos Cob, Connecticut, USA

Gordon P. Eaton, Ph.D.

Reston, Virginia, USA

Michael G. Gartner

Editor and Co-Owner
Ames Daily Tribune
Retired President, NBC News
Des Moines, Iowa, USA

Robert D. Havener

President Emeritus
Winrock International
Solvang, California, USA

Dean R. Kleckner

President
American Farm Bureau Federation
Park Ridge, Illinois, USA

Pekka Linko, Ph.D.

Professor
Biotechnology and Food Engineering
Helsinki University of Technology
Espoo, Finland

Robert S. McNamara

Former President
The World Bank
Washington, DC, USA

Olusegun Obasanjo

Former Head of State of Nigeria
Chairman, Africa Leadership Forum
Ota, Ogun State, Nigeria

Herman C. Kilpper

Executive Director
The World Food Prize Foundation
Des Moines, Iowa, USA

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The World Food Prize Foundation

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Des Moines, Iowa 50309, USA
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Web page: www.netins.net/showcase/wfp

THE WORLD FOOD PRIZE

Fact Sheet

- The World Food Prize recognizes -- without regard to race, religion, nationality or political beliefs -- the achievements of individuals who have advanced human development by improving the quality, quantity or availability of food in the world.
- The World Food Prize includes a cash award of \$200,000 and a sculpture by world-renowned designer Saul Bass. Each year, more than 3,500 institutions and organizations around the world are invited to nominate candidates for the prize.
- The World Food Prize was conceived by Dr. Norman E. Borlaug, 1970 recipient of the Nobel Peace Prize. The founding sponsor was the General Foods Fund, Inc., in 1986.
- In 1990, John Ruan established The World Food Prize Foundation and assumed sponsorship of The World Food Prize. The World Food Prize is based in Des Moines, Iowa. The Iowa State University College of Agriculture, located in Ames, Iowa, serves as the Secretariat of The World Food Prize.
- Beyond recognizing individual accomplishments, The World Food Prize is intended to attract talented, creative and dedicated young people to diverse and challenging careers in food and agriculture.
- The 1995 World Food Prize is awarded to Dr. Hans R. Herren who is recognized for his leadership role in the development and implementation of the biological control project for the cassava mealybug which had nearly destroyed the entire Africa cassava crop. This achievement stabilized the production of cassava, which is the basic food staple of 200 million people and the great famine reserve for the poor. The success of the biological control of the cassava mealybug soon became the model for the future expansion of an approach that has proven ecologically and economically sound.
- The World Food Prize has previously been awarded to nine extraordinary individuals:
 - 1994 Dr. Muhammad Yunus, founder of the Grameen Bank in Bangladesh, developed innovative small loan programs for the poor, providing millions of people throughout the world access to food and nutrition for the first time in their lives.
 - 1993 He Kang, former Minister of Agriculture in China, provided the leadership that caused large increases in agricultural output in the early 1980s and made China self-sufficient in basic food for the first time in modern history.
 - 1992 Dr. Edward F. Knipling and Dr. Raymond C. Bushland, a team of entomologists, developed the sterile insect technique to control insect parasites that threaten vast sources of food, especially livestock and wildlife populations.
 - 1991 Dr. Nevin S. Scrimshaw developed the principle for low-cost, protein-rich food products to combat malnutrition in developing countries.
 - 1990 Dr. John S. Niederhauser discovered and utilized a durable resistance to the potato late blight disease, which boosted the food supply and improved nutrition for many nations.
 - 1989 Dr. Verghese Kurien turned the milksheds of India into cooperatives that produce, process, and market milk in the urban centers of that country.
 - 1988 Dr. Robert F. Chandler, Jr., guided the development and distribution of new varieties of rice with double and triple the yield potential of traditional rice.
 - 1987 Dr. M.S. Swaminathan, architect of India's "Green Revolution," led the introduction of high-yielding wheat and rice varieties for Indian farmers.



NOVEMBER 1995

THE WORLD FOOD PRIZE *Report*

PUBLISHED BY THE WORLD FOOD PRIZE FOUNDATION

World Food Prize Awarded to Swiss Entomologist for Saving African Food Crop



President Clinton congratulates Dr. Hans Herren during their meeting in Des Moines, following the 1995 award ceremonies.

The 1995 World Food Prize has been awarded to Dr. Hans R. Herren, a Swiss-born entomologist who led a dramatic and highly successful effort to rescue one of Africa's most important food crops from a pest that threatened its total destruction, and in the process averted widespread famine that may have cost millions of Africans their lives.

Dr. Herren, who now lives in Nairobi, is the tenth person to receive The World Food Prize, which is awarded annually in recognition of individuals who have advanced human development by improving the quality, quantity, or availability of the world's food supply. Recipients of the prestigious prize receive a cash award of \$200,000.

Former President Jimmy Carter, who is a member of The World Food Prize Council of Advisors, and who personally visited the Cassava Mealybug Biological Control Program headquartered in Benin, Africa, called Dr. Herren a visionary scientist whose "profound devotion to social and environmental responsibility helped avoid a disaster of enormous scale."

"All people engaged in the high calling of improving and protecting the world's food supply should be inspired by Dr. Herren's work," Carter added.

In 1979 Dr. Herren joined the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria. When he arrived in Africa as a young scientist he was immediately confronted by a looming crisis that threatened to destroy a key source of the food consumed by 200 million people: the cassava plant. Cassava — best known to Americans in the form of tapioca — is by far the most important root crop grown in the tropics and is a dietary staple in many African countries.

Cassava has been grown successfully in Africa since the 16th Century, when it was introduced to the continent by Portuguese traders returning from South America.



President Carter and former First Lady visiting the IITA-Biological Control Center in Cotonou, Republic of Benin in 1983. They are being shown the cassava plant production on "artificial trees", the first step of the cassava mealybug natural enemies mass-rearing operation. (Hans Herren on the left.)

ATTENTION
1996 World Food Prize
Nomination Procedures inside.

But in the early 1970's, a person interested in the higher yield of South American cassava varieties ignored quarantine restrictions and brought a new variety to Africa, called *Phenacoccus maniboti*—the cassava mealybug.

The mealybug thrived in Africa because it had no natural enemies. By the late 1970's, the pest was destroying as much as 80 percent of the cassava crop in some areas, and it was spreading rapidly. The prospect of widespread famine and economic and environmental calamity loomed large.

Dr. Herren, a self-described "eco-freak," was convinced the answer to the crisis lay in a biological control program. Simply put, he set out to find the cassava mealybug in its native habitat—somewhere on the vast continent of South America—and then find the pest's natural enemy and import it to Africa.

The young scientist marshalled every resource he could think of in pursuit of his ambitious plan, from the international network of agricultural research centers to government agencies and academic institutions around the globe.

Two years later his efforts paid off, when Dr. Anthony Bellotti, at the International Center for Tropical Agriculture in Colombia, a sister institute of IITA, discovered the cassava mealybug in Paraguay. Dr. Herren's team zeroed in. Soon they had identified a tiny wasp, *E. lopezi*, that proved to be the mealybug's predator.

Dr. Herren's work was far from over, however. Having identified the wasp, he had to move it through the international checkpoints that control the importation of living organisms, devise a system to breed the wasp in sufficient numbers and another to distribute it across an area one and a half times the size of the United States, convince local governments to cooperate, assemble a team of scientists and collaborators, train the hundreds of people needed to monitor and operate the program—and raise the cash to put the plan into action.

The latter task wasn't easy. In 1984, with his wasps at the ready, Dr. Herren asked donors for \$30 million over five years to pay for the program. "People gave me a big laugh and said the project was too grandiose," Dr. Herren recalled later.

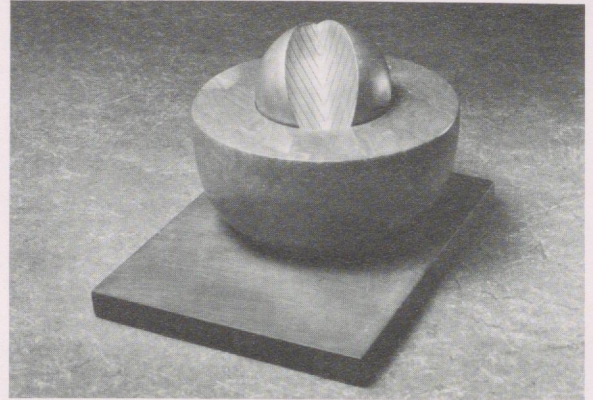
Eventually he persuaded donor agencies in Canada and Europe to put up \$20 million over 12 years. He didn't need 12 years to demonstrate results, however. Within five months, the wasps had spread as far as 120 miles from their release point, reducing mealybug populations below damaging levels.

At the end of seven years the wasps had brought the mealybug problem under control in 30 nations, and Dr. Herren was operating the largest and most successful biological control program the world had ever seen. ■

Dr. Herren's work exemplifies the bold and innovative leadership that The World Food Prize was established to honor. He successfully used nature to combat a potential natural disaster—a disaster which threatened to devastate the most important staple in the daily diet of some 200 million people.

DR. NORMAN E.
BORLAUG,
NOBEL PEACE PRIZE
LAUREATE

A Prize for the World



The commemorative sculpture of The World Food Prize was created by world-renowned designer Saul Bass. This sculpture symbolizes the world, its food and the nourishment of its peoples.

The World Food Prize is the foremost international award recognizing outstanding individual achievement in improving the quality, quantity, or availability of food in the world.

The Prize emphasizes the importance of a nutritious and sustainable food supply for all people. By honoring those who have worked successfully toward this goal, The World Food Prize calls attention to what can be accomplished in the future.

The Prize recognizes achievements in any field involved in the world food supply, including food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, the social sciences, and other related fields.

The laureate receives \$200,000 and a sculpture created by world-renowned designer Saul Bass. The award is based solely on individual achievement with no consideration of nationality, ethnic origin, political persuasion, religious beliefs, sex or age.

Norman E. Borlaug—winner of the Nobel Peace Prize for his work in world agriculture—envisioned a prize that would honor individuals who have made significant and measurable contributions to improving the world's food supply. Beyond recognizing these people for their personal accomplishments, he saw the prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was founded in 1986.

In 1990, John Ruan established The World Food Prize Foundation in Des Moines, Iowa and assumed sponsorship of The World Food Prize. The Iowa State University College of Agriculture serves as secretariat to The Prize. ■

Speech by Dr. Hans R. Herren on Acceptance of the 1995 World Food Prize

Pest Control and Food Security with a Difference: The Cassava Mealybug Biological Control Program

You must be the change you wish to see in the world.
Mahatma Gandhi

The change I saw which was needed was that people, all people, must have access to food. Not just any food, but food which is nutritious, wholesome and unspoiled. Food which is grown in optimum quantity and under sustainable conditions, so that all of us have enough today and so that we also conserve our capital, the "common living dirt" as described by Marge Pierce, so that future generations can live long and healthy lives.

This change is without doubt the one seen by both Mr. John Ruan and Dr. Norman Borlaug, and thus their passion and full dedication to the cause of food security and sustainable agriculture. Both deserve our commendation and praise for their many and important accomplishments.

The World Food Prize, which has been awarded to me today, recognizes not only my personal efforts, but also the efforts of my extraordinary team, which included scientists, extension workers and farmers on four continents. It recognizes above all the plight of the needy and the efforts being made to assure them of not only food, but also dignity and a chance to move beyond the daily insecurity of not knowing if their families will enjoy the next meal.

The World Food Prize has also provided a unique and most welcome opportunity to broadcast the virtues and potential of biological control. For the second time, a pest control intervention which guarantees the integrity of the environment and works in harmony in the agro-ecosystem has been the winning selection of the World Food Prize Committee. Biological control operates most naturally in our fields, orchards, gardens and grasslands. It also operates in areas devoid of human habitation. This environmentally friendly pest control strategy, which is not new at all, was relegated to the back closet with the discovery of modern pesticides, which kill with speed and power. It is only fairly recently that the general public and policy makers have become aware of the downside of the miracle cure: food laced with residues; water wells contaminated and rendered useless; air pollution; to sum it up, environmental degradation.



Dr. Hans R. Herren, 1995 World Food Prize laureate

Through the use of products which are foreign to the system, the natural balance between plants, insects and their natural enemies is being destroyed, bringing about new pest outbreaks in which arthropod pests and weeds alike become resistant to any form of treatment. This leads into the now-familiar treadmill of increasing the need for external inputs, thus creating dependence on new substances with ever greater potency. Agriculture, however, is itself an intervention in the natural system, and so we are bound to experience a reaction. The system's counter-reaction is enhanced if we ignore the basic principles of nature and is made worse by the use of powerful and indiscriminate tools to rectify its natural reactions. If the pesticide path may have looked financially affordable by the developed countries, it certainly is not for the farmers of the developing countries. In the North, the cost of the side effects are borne by the overall community via subsidies, high health care costs and taxes for cleanup operations. The damages to the environment, many as yet unknown, will be paid for by future generations. Mother Earth, with her diversity and fertility, can nourish us all, and even more, but we must treat her with respect and gratitude. Her resilience, although great, has its limitations.

Early in my career, I was impressed with Dr. Norman Borlaug and his award of the Nobel Peace Prize for his pioneering work in increasing food production for the world's hungry. Although I grew up on a farm, the determination to follow a career in

The food supply in Africa is under constant pressure. Population growth, ecological limitations and political uncertainties—one only need to look at the numerous civil wars that currently wrack the continent—all work to undermine the basic human right of adequate daily nutrition for all human beings. There are other problems. African farmers are poor. They work small plots of land with little benefit of high technology. The scientific advances available to farmers in the industrialized world are mostly unaffordable to them. Dr. Herren's work speaks to these concerns. His effort to save the cassava crop was achieved with economic efficiency and with virtually no disruption to the everyday practices of the African farmer. Moreover, his goal was achieved through natural means, without disruption to the environment.

THE HONORABLE
JIMMY CARTER,
WORLD FOOD PRIZE
COUNCIL OF ADVISORS
MEMBER



Dr. Hans Herren receiving the 1995 World Food Prize from John Ruan, Chairman, and John Ruan III, Vice-Chairman of The World Food Prize Foundation.

Dr. Herren's program teaches an important lesson, one which all men and women involved in the production, improvement, distribution and protection of food should recognize. It is this: The most effective and environmentally sound agricultural programs may also be the most economic. Sustainable agriculture need not be viewed as an indulgence that only well-educated farmers in wealthy nations can afford to practice. It may well be the most economic and efficient answer to the agricultural problems of farmers in developing countries.

JOHN RUAN, CHAIRMAN,
THE WORLD FOOD PRIZE
FOUNDATION

the area of agronomy and crop improvement became a must with such a role model as Borlaug.

Eventually, I ended up not a plant breeder, but an entomologist, this thanks to Professor Vittorio Delucchi from the Swiss Institute of Technology in Zurich, who, through his most interesting lectures and dedication to biological control and Integrated Pest Management (IPM) got me hooked on the fascinating world of insects. It is during my stay at the University of California in Berkeley, that I picked up the "virus" for biological control from the late Professor Robert van den Bosh. Together with my parents, these three personalities were the role models who shaped what I am, and what I stand for and do.

When I went to Africa in 1979, to a continent known for its food problems due to droughts, poor soils, difficult farming conditions and overall lack of investment in agricultural research, little did I know that I would play a part in resolving one of the major threats to the food security of over 200 million people of Africa south of the Sahara in an area one and a half times the size of the USA. I was determined to do my best, however difficult the task may be, and whatever road blocks I might find on the way, laid by bureaucrats, critical and outright anti-biological colleagues, or business interests.

Cassava and the Mealybug

Cassava, domesticated by the Indians of the Amazon basin of Brazil, is an ideal food plant, providing a carbohydrate-rich meal from its starchy roots and a protein-rich vegetable from its leaves. It can be stored in the ground for several years until harvested. Its propagation is simple, via stem cuttings, which grow easily in any environment ranging from the dry northeast to the deep rain forest of Brazil cassava thrives in the different

ecological zones of Africa, where it was introduced by the Portuguese some 300 years ago. Its hardiness makes it the ideal crop for subsistence agriculture and for shifting and nomadic lifestyles. It was always where you planted it...until the mid-1970s.

Kinshasa and Brazzaville, 1977. The citizens and the authorities of the capital cities of Zaire and the Congo are calling for help. The staple food, cassava roots and leaves, have withered away. The cause is identified as "candle stick" disease. The normally green and lush bushes, about six to eight feet tall have shrunk to foot-tall dried sticks, devoid of leaves and starchy roots. The price of whatever cassava is still available, brought in from afar, is beyond the average pocketbook. Starvation is around the corner, in the cities and in the countryside. The "disease" is spreading fast in all directions, at a rate of several hundred miles a year. In a few years, new trouble spots will appear in the extreme west and east of Africa, always with the same picture of fields of dried sticks. The governments of the concerned countries request assistance for an immediate solution to the problem.

Fortunately, scientists had already identified the cause of the problem to be due to an insect, the cassava mealybug *Phenacoccus manihoti*, and not to a disease. Trials with insecticides, usually the first move when there is a pest problem, did not show promise. Their price, availability and effectiveness disqualified them as a solution. The search for resistant plants and the development of new varieties would have taken 10 to 15 years, too long a wait. So the problem was left with only possible solution, and as it happened, the best: biological control. If effective natural enemies could be found, they could be reared and released in a timeframe short enough to avert mass starvation. Any successful program would need to catch up on lost time, and keep up with the continued and non-stoppable spread of the cassava mealybug across the African continent. Within eight years of its first discovery, the mealybug had reached all corners of Africa where cassava is grown.

The International Institute of Tropical Agriculture (IITA), 1979. Based in Nigeria and set up by the Ford and Rockefeller Foundations in the late 1960s to provide research and capacity building in support of agricultural development in Africa, the IITA immediately picked up the cassava mealybug challenge. I joined IITA fresh from my postdoctoral appointment at Berkeley to carry out what was to become the largest biological control program in the world. (I must here pay tribute to Dr. W. K. Gamble, Director General of IITA in 1979 for having entrusted me with this task, against the advice of some of his collaborators).

After a most interesting period of 18 months exploring the Americas from southern California to Argentina for the cassava mealybug, its presumed area of origin, the culprit was discovered in Paraguay by a collaborator in the Program from an IITA sister center based in Colombia. The discovery of the mealybug led us automatically to its natural control agents, which kept it at such low population levels that no scientists had ever seen the cassava mealybug. Such natural control agents were what I was looking for. The fact that this insect had been able to develop in Africa without constraint, with no limiting factor except for the availability of its food source, led us to deduce that it must have originated from another continent. This was confirmed by the Museum of Natural History in Paris, whose consensus was that this was a species new to science, but closely resembling Latin American mealybugs.

IITA, 1981. After the discovery of the mealybug, an intensive search of the border areas between Paraguay, Bolivia and Brazil turned up several species of natural enemies, including, among others, wasps and ladybird beetles. All of these were transported to Africa after a period of quarantine in the UK in order to eliminate all unwanted organisms and also any disease that they might have been carrying. At the IITA laboratories, the wasps and ladybirds were studied in great detail, mass rearing protocols were established and the first experimental releases undertaken in November 1981. Meanwhile, research into the cassava ecosystem, the mealybug and its natural enemies was going full steam ahead. The training program, which eventually involved nearly one thousand scientists and technicians from across the continent had picked up momentum and so had the nearly thirty national biological control programs which became partners in the Program's survey, release and post-release assessment activities.

The integration of research, capacity building and national program development into one Program, funded by a consortium of donors, contributed greatly to the swift success of the control operation. By any standard, the economic evaluation of the program, with a cost:benefit ratio of 1:149 is most impressive for a development undertaking. Note also that this calculation only accounts for the costs of the first 20 years of the program, notwithstanding the fact that its benefits will accrue forever.

IITA, 1992. The mass rearing operations at IITA have been closed down, and the aircraft and specially designed airborne insect release system (AIRS) have been retired, for good. The mealybug is no longer a problem in about 95% of the cassava growing zones of Africa. The cassava farmers' nightmare has gone. In most areas, the farmers see the cassava grow again as it used to, completely unaware of our efforts,

except for the few who did see an aircraft overhead, or the teams of scientists stomping around and bending over cassava plants in their fields. Herein lies one of the greatest advantages of biological control, and perhaps also its dilemma.

Once natural enemies are released, they will do their job, keeping their host at a tolerable level, permanently and without further inputs. With few exceptions, biological control offers no commercial potential for the long term against a single pest. When one problem is resolved, a new one needs to be tackled and new investment made. However, the level of investment required decreases over time, as facilities and trained personnel are at hand for the new undertakings. The recovery of the investment is difficult, if not impossible, at least in the developing



countries. Here, I should like to pose an important question: should not pest control be more of this type, i.e. the task of international, regional or national organizations? This would save millions of dollars in pesticide today and tomorrow, and would cost comparatively little. Such an approach would not place time bombs or mines in the environment, with which to harm our innocent children.

The cassava mealybug biological control program is now a model for solving other pest problems in Africa and the tropics. It has demonstrated the feasibility of large-scale programs, very economically and with great care for the ecosystem. As Director of the IITA Plant Health Management Division and Center for Biological Control in Benin where we had moved in 1988, I started, with my then 30 scientists strong team, a biological control program on other introduced pest of cassava such as the cassava green mite, a pest which, although not as devastating as the mealybug, is serious enough to

Dr. Norman Borlaug; Dr. Uma Lele, Advisor, World Bank; Robert Havener, World Food Prize Council of Advisors; Dr. Hans Herren; and Brian Atwood, Administrator, USAID, participate in a roundtable discussion on food security prior to the World Food Prize award ceremony. Mr. Atwood was the keynote speaker to precede the roundtable. Mr. Havener served as moderator.

require permanent control. Also, we brought under control the mango mealybug in west and central Africa, and started major IPM programs in cassava, corn, cowpeas, bananas and water weeds.

The foresight and, above all, the readiness of a special friend, Mr. Eric Sicely of the International Fund for Agricultural Development, who in early 1980 dared to take a risk in allocating the first US\$280,000 to the cassava mealybug biological control program, is worth a special vote of thanks. The continued support and organization by IFAD of a donor support group, and the support of Mr. Sicely's successor, Dr. Abbas Kesseba, is also acknowledged with thanks. Special mention for support and confidence in the program go to the development cooperation agencies of Norway, Switzerland, Italy, Germany, Denmark, Sweden, Austria, Canada, Belgium and the Netherlands. The UNDP, FAO, the CGIAR Donors, and the African Development Bank have been steady supporters and also deserve a vote of thanks.

After having guided to completion the successful cassava mealybug biological control program, I now look back and find my biggest reward to be the fact the over 200 million Africans have a meal to look forward to. It is equally rewarding to note that plant

In my new position at the head of the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, I shall continue promoting what I believe in, which is continuing to promote environmentally sustainable technologies and solutions which will alleviate world poverty and hunger, while increasing access to good health and education. In this unpredictable world, this will help bring about stability and optimism.

There are many more challenges remaining. The World Food Prize, which I am receiving today, will help me a great deal to be heard better, to attract the attention of policy makers, government officials and the donor community. We need to invest today in our future. I am appealing to the generosity and the passion of the "haves" of this world, to support more efforts such as the ones I have just talked about. It is our common global responsibility. Support for agricultural research, for the basic human needs such as hunger, poverty and health is needed in order to address the challenges facing us. With the lead time from research to implementation often a decade or more, there is no time to lose. The population clock is ticking away relentlessly.

Mr. Chairman, Members of the Council, Friends, Colleagues, Ladies, Gentlemen and dear family, it is with great honor and gratitude that I accept the Prize you have awarded me for simply doing what needed to be done. I want to express my deepest gratitude to all the colleagues whose contributions and dedication to the Program made it the success it has become.

This prize has not only given a chance to the world to learn about cassava, the cassava mealybug and biological control, it has given a forum and a voice to the poor of this world, the people for whom the cassava plant can mean life or death. It has also given a voice to the insects, most of which are good and essential elements for our survival. The great honor I am receiving today will make it a lot easier for me to continue promoting insect sciences for the benefit of mankind with fresh impulses and initiatives. I did enjoy every step along the way, it was satisfying and rewarding. Going against the grain and jumping hurdles are part of the excitement of being a scientist working at the cutting edge of development with a difference: truly sustainable development.

Finally, I should like to thank my wife and my children, who have made many sacrifices, not least in allowing their husband and father to go on long journeys to the Americas and across the African continent.

Thank you all very very much. ■



Dr. Herren is greeted and congratulated by Dr. Norman Borlaug and Brian Atwood as he received the 1995 World Food Prize.

protection specialists across the continent have been exposed to and participated in a live model of what can be done with nature when a pest strikes. The program has thus empowered them and their constituency. The future for environmentally sensible plant health strategies now looks much brighter and I am pleased that at least Africa has shown the way in accepting the challenge to try something different, when so much was at stake.



THE WORLD
FOOD PRIZE

1996 Nomination Procedures

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To submit a nomination, please give us the following information, in the order shown, in English, French, or Spanish:

Name

Nominee's name, affiliation, address, and telephone number. Attach a recent photograph of the nominee.

Biographical Information

Date and place of birth, education, positions held (in public and private organizations), professional affiliations, honors and awards.

Personal

In one or two typed pages, describe the nominee's personal contribution to increasing the quality, quantity, or availability of food. The candidate should be nominated for one specific, measurable, and sustainable achievement that has brought food to the world's people.

Nominating Organization

Name of nominating organization, address, and telephone number. The nomination must be signed by the chief executive officer of the nominating organization, certifying the accuracy of the information. The identity of the nominating organization is kept in strict confidence.

Date

Date of nomination.

Seconding Nominations

Letters seconding the nomination from three individuals who are familiar with the nominee's work.

Supporting Documents

Documents that support your description of the nominee's personal contribution. These may include general articles about the nominee's activities and trends in the nominee's field and appropriate, significant publications by the nominee. Please send only one copy of each document.

If your nominee is not selected to be the laureate, your nomination can be reconsidered for two years. However, you must send us written confirmation each year of your wish to renominate and provide updated supporting documents.

If your nominee becomes The World Food Prize laureate, the information contained in the description of personal contribution and the supporting documents may be used to prepare news materials about the winner.

Your nomination must be postmarked by March 15, 1996, to be considered. Send your nomination to:

THE WORLD FOOD PRIZE

Office of the Secretariat
David G. Topel, Dean
College of Agriculture
Iowa State University
Ames, Iowa 50011 USA
Tel (515)294-2518
Fax (515)294-6800

A nomination form to submit initial information via E-mail can be found in the World Food Prize World Wide Web page:

<http://www.netins.net/showcase/wfp>

Supporting documents must be submitted by mail by the March 15, 1996, deadline.

Past Laureates

1994

Dr. Muhammad Yunus, founder of the Grameen Bank in Bangladesh, developed innovative small loan programs for the poor, providing millions of people throughout the world access to food and nutrition for the first time in their lives.

1993

He Kang, former Minister of Agriculture in China, provided the leadership that caused large increases in agricultural output in the early 1980s and made China self-sufficient in basic food for the first time in modern history.

1992

Dr. Edward F. Knipling and Dr. Raymond C. Bushland, a team of entomologists, developed the sterile insect technique to control insect parasites that threaten vast sources of food, especially livestock and wildlife populations.

1991

Dr. Nevin S. Scrimshaw developed the principle for low-cost, protein-rich food products to combat malnutrition in developing countries.

1990

Dr. John S. Niederhauser discovered and utilized a durable resistance to the potato late blight disease, which boosted the food supply and improved nutrition for many nations.

1989

Dr. Verghese Kurien turned the milksheds of India into cooperatives that produce, process, and market milk in the urban centers of that country.

1988

Dr. Robert F. Chandler, Jr. guided the development and distribution of new varieties of rice with double and triple the yield potential of traditional rice.

1987

Dr. M. S. Swaminathan, architect of India's "Green Revolution," led the introduction of high-yielding wheat and rice varieties for Indian farmers.

The World Food Prize Council of Advisors

The World Food Prize Report is published by The World Food Prize Foundation.

To receive more information about The World Food Prize please contact:

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50309 USA
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Fax (515) 245-3785

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Web page
www.netins.net/showcase/wfp

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John Ruan

Chairman
The World Food Prize Foundation
Des Moines, Iowa, USA

Norman E. Borlaug, Ph.D.

Nobel Peace Prize Laureate
President, Sasakawa Africa Association
Former Director, Wheat—CIMMYT
Mexico City, Mexico

The Honorable Jimmy Carter

Chairman
The Carter Center
Atlanta, Georgia, USA

A. S. Clausi

Chairman
Institute of Food Technologies
Foundation
Senior Vice President, Retired
General Foods Corporation
Coc Cob, Connecticut, USA

Gordon P. Eaton, Ph.D.

Reston, Virginia, USA

Michael G. Gartner

Editor and Co-Owner,
Ames Daily Tribune
Retired President, NBC News
Des Moines, Iowa, USA

Robert D. Havener

President Emeritus
Winrock International
Solvang, California, USA

Dean R. Kleckner

President
American Farm Bureau Federation
Park Ridge, Illinois, USA

Pekka Linko, Ph.D.

Professor
Biotechnology and Food Engineering
Helsinki University of Technology
Espoo, Finland

Robert S. McNamara

Former President
The World Bank
Washington, DC, USA

Olusegun Obasanjo

Former Head of State of Nigeria
Chairman, Africa Leadership Forum
Ota, Ogun State, Nigeria

Herman C. Kilpper

Executive Director
The World Food Prize Foundation
Des Moines, Iowa, USA



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Address Correction Requested

DATED INFORMATION INSIDE
1996 World Food Prize Nomination Procedures.



OCTOBER 1994

THE WORLD FOOD PRIZE *Report*

PUBLISHED BY THE WORLD FOOD PRIZE FOUNDATION

World Food Prize Awarded to Creator of Innovative Loan Programs for the Poor



Dr. Muhammad Yunus receives the 1994 World Food Prize from former President Jimmy Carter, a member of the World Food Prize Council of Advisors, as Dr. Norman Borlaug, Nobel Peace Prize laureate and a Council of Advisors member, and John Ruan, Iowa businessman and Chairman of The World Food Prize Foundation, look on.

The 1994 World Food Prize has been awarded to Dr. Muhammad Yunus, whose innovative programs have offered millions of the world's poorest people access to more food and better nutrition. Dr. Yunus is the ninth person to receive the prestigious prize, which is given annually in recognition of individuals who have advanced human development by improving the quality, quantity and availability of food in the world. Recipients receive a cash reward of \$200,000.

As founder and chief executive officer of the Grameen Bank, Dr. Yunus has led the battle against hunger in his native Bangladesh through economic empowerment for the poor.

"Dr. Yunus has given hope to a nation where hope has been in desperately short supply," said former President Jimmy Carter, a member of the World Food Prize Council of Advisors. "He has shown the world that poor people want the same thing as all human beings — the opportunity to live in good health and dignity."

The Grameen Bank offers small, non-collateral loans to landless people living in rural areas. Although the average loan is less than \$100, it almost always provides recipients with the means to increase their incomes.

The loans are often used for what are described as traditional subsistence activities: planting a crop, buying a cow, raising chickens or grinding grain. As a result, people receiving loans not only have better access to food, but they are able to use their meager incomes to secure necessities other than food, such as clothing and shelter.

"The cause of hunger is rooted in poverty," Dr. Yunus said. "If we can eliminate poverty, we will eliminate hunger. I believe we can, if we truly desire it, eradicate poverty and hunger within our lifetime. I am proud to accept the World Food Prize in recognition of that great goal."



John Ruan, Dr. Norman Borlaug and former President Jimmy Carter watch as Dr. Yunus receives a traditional ceremonial garland of flowers from a group of children.

ATTENTION

**1995 World Food Prize
Nomination Procedures inside.**

The cause of hunger is rooted in poverty. If we can eliminate poverty, we will eliminate hunger. I believe we can, if we truly desire it, eliminate poverty and hunger within our lifetime. I am proud to accept the World Food Prize in recognition of that great goal.

MUHAMMAD YUNUS
1994 WORLD FOOD
PRIZE LAUREATE

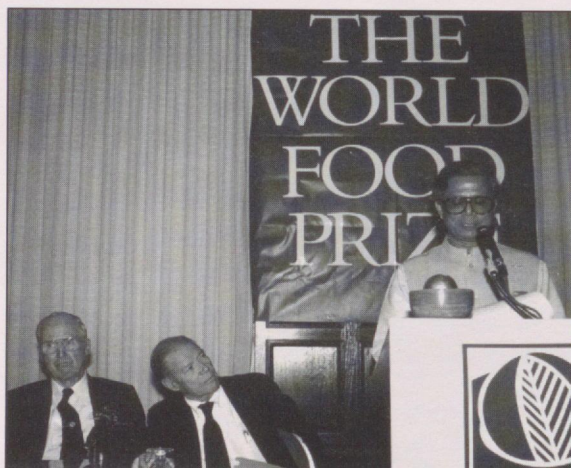
Bangladesh is one of the world's poorest nations, with an average annual income of only \$210. Although the Grameen Bank deals exclusively with people who could never obtain a conventional loan, it has a remarkable 98 percent repayment rate, far exceeding that of most commercial banks.

Since its modest beginnings in 1976, the Grameen Bank has grown steadily and this year expects to loan more than half a billion dollars to its two million members. Based on its success, programs modeled after Grameen have begun operating in many other countries, including the United States.

Former World Bank President Robert McNamara, also a member of the World Food Prize Council of Advisors, praised Dr. Yunus as a pioneer in working to solve the problem of hunger and malnutrition in developing nations.

"Malnutrition in developing countries," he said, "can be a function of either a global food shortage or lack of purchasing power by the poor to buy available food. Today we suffer not from a shortage of food but from the inability of the poor to buy the available food. Dr. Yunus's program addresses that problem."

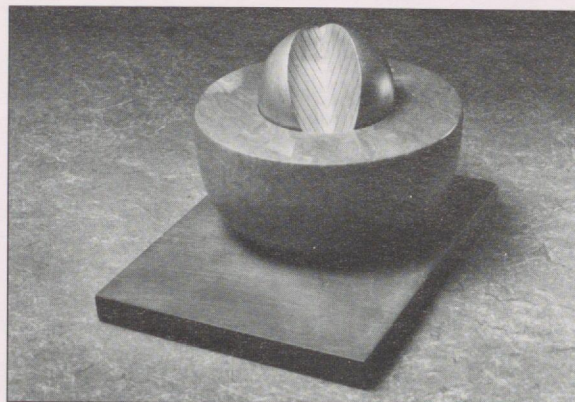
Iowa businessman John Ruan, Chairman of the World Food Prize Foundation, praised Dr. Yunus's innovative programs as "the perfect model for a world in search of food security."



Dr. Norman Borlaug and Robert McNamara, former World Bank President and member of the World Food Prize Council of Advisors, listen as Dr. Yunus speaks in Washington, D.C. following the announcement of his selection as the 1994 World Food Prize laureate.

Ruan observed that the world's population continues to grow at the staggering rate of nearly 10,000 people per hour. "It is vital that we recognize and encourage the efforts of those who have struggled to meet the world's ever-increasing demand for food," Ruan said. ■

A Prize for the World



The commemorative sculpture of The World Food Prize was created by world-renowned designer Saul Bass. This sculpture symbolizes the world, its food and the nourishment of its peoples.

The World Food Prize is the foremost international award recognizing outstanding individual achievement in improving the quality, quantity, or availability of food in the world.

The Prize emphasizes the importance of a nutritious and sustainable food supply for all people. By honoring those who have worked successfully toward this goal, The World Food Prize calls attention to what can be accomplished in the future.

The Prize recognizes achievements in any field involved in the world food supply, including food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, the social sciences, and other related fields.

The laureate receives \$200,000 and a sculpture created by world-renowned designer Saul Bass. The award is based solely on individual achievement with no consideration of nationality, ethnic origin, political persuasion, religious beliefs, sex or age.

Norman E. Borlaug—winner of the Nobel Peace Prize for his work in world agriculture—envisioned a prize that would honor individuals who have made significant and measurable contributions to improving the world's food supply. Beyond recognizing these people for their personal accomplishments, he saw the prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was created. ■

Speech by Dr. Muhammad Yunus on Acceptance of the 1994 World Food Prize

Former President Carter, Mr. Chairman, Members of the Council, Members of the Committee, Distinguished Guests, Ladies and Gentlemen:

I have been struggling to draw national and world attention to poverty and hunger issues for many years now. But I never thought I would be considered for the immensely prestigious World Food Prize. When I received a call from the World Food Prize Foundation I could not believe what I heard. I am overwhelmed by the honour given to be by choosing me as the 1994 World Food Prize Laureate. Thank you for giving me this honour. Through your decision you have also honoured the two million poorest families in Bangladesh who have demonstrated for the world, most convincingly, that given the institutional support the poor can change their economic status and achieve their own food security; you have honoured the eleven thousand young men and women at Grameen Bank who work very hard to make a dream come true — a dream of creating a poverty-free world.

I look at the Prize not only as an endorsement of what I have done, I look at it more as a thunderous endorsement of what we can all achieve — the creation of a poverty-free world in our lifetime. I feel thrilled to discover that we share a common dream.

I am very grateful to you for making me and my co-workers feel stronger in our commitment.

The idea of Grameen Bank was conceived in the backdrop of a devastating famine — Bangladesh famine of 1974. Nearly one and a half million people died in that famine. What was I doing when hundreds of thousands of people were dying of hunger on the streets, railway stations, dirt roads, and the huts of the villages? I was teaching elegant theories of economics in a Bangladeshi university impressing upon my students that economics text-books have answers to all economic problems. I started hating myself for the arrogance of knowledge that I was inculcating in my students, while I saw the emptiness of it all in terms of its capacity to help the hungry people to hold on to their precious lives.

I became a fugitive from the formal academic life. I wanted to learn from the lives of poor

people, rather than from the holy text-books and prestigious journals.

Very soon I learned that it is not the shortage of food that makes people go hungry, it is the lack of ability to buy food which made people go without food. Agricultural scientists and technological innovations have done wonders in making sure that there is enough food for everybody in this world. But social scientists could not think of ways to let everybody have access to this food. Over one billion people who live in utter poverty remain uncertain about their next meal, and the meal next. Today, for all practical purposes, food security has turned out to be a question of income security. Hunger is a symptom of poverty. If we can root out poverty, we root out the systemic cause of hunger.

Brilliant theories of economics do not find it worthwhile to spend time in discussing issues of poverty and hunger. They want you to believe that these will be resolved when the march of economic prosperity will sweep through the nations.

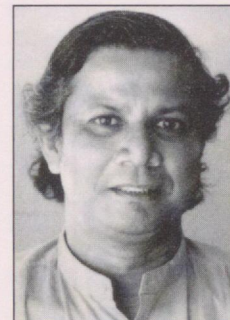
Economists spend all their talents in detailing out the processes of development and prosperity, but none on the processes of poverty and hunger.

I feel very strongly that if the world recognizes poverty alleviation as an important and serious agenda, we can create a world that we can be proud of, rather than feel ashamed of, as we do now.

If we are looking for one single action which will enable the poor to overcome their poverty, I would go for credit. Money is power. I have been trying to make the world accept and treat credit as a basic human right.

If we can come up with a system which allows everybody access to credit while ensuring excellent repayment — I can guarantee you poverty will not last long. Economic literature treats human beings as “labour;” all that the people can do is to sell their labour power. It is a shame that human beings are visualized as horses or work-animals. I think we have created the problem of poverty, hunger and indignities by treating people as “labour only.”

Economic theories are held in such great respect we do not think of changing this



Muhammad Yunus
1994 World Food Prize
laureate

“Dr. Yunus has given hope to a nation where hope has been in desperately short supply. He has shown the world that poor people want the same thing as all human beings—the opportunity to live in good health and dignity.”

THE HONORABLE
JIMMY CARTER,
WORLD FOOD PRIZE
COUNCIL OF ADVISORS
MEMBER

"I am very grateful for the opportunity to say a few words in a gathering of such distinguished and respected personalities committed so passionately to search for answers to food security for the poorest of today's global village. I can assure you they are not really poor and despicable but we have trapped them in our economic jargon as poor. I believe that, in serious economics, a person without any asset is not a human being. I am very proud, more as a Bangladeshi or rather as a South Asian than Ambassador of Bangladesh, that a distinguished son of Bangladesh, once referred in cold war contrived compulsions as a 'basket case', would get The World Food Prize from a prestigious international foundation like The World Food Prize Foundation.

HIS EXCELLENCY
HUMAYUN KABIR,
AMBASSADOR OF
BANGLADESH, FROM A
SPEECH GIVEN
FOLLOWING THE
PRESENTATION OF THE
1994 WORLD FOOD
PRIZE TO DR. YUNUS.

characterization of human beings to fix the problem of poverty. We only tried to make poverty tolerable by introducing unemployment and welfare benefits, and other safety-net programmes.

A human being is a very creative animal, not just a work-house. He/she is endowed with the ingenuity and creativity which no other creature can match. Every human being has a tremendous potential which most often remain unexplored because of the system we have build around us.

If only we had imagined a world where every human being is a potential entrepreneur, we would have built a system to give everybody a chance to materialize his/her potential.

Now, instead, we have created non-negotiable distances between the entrepreneur and labour. But if we allow labour access to capital this world will be very different from what we have built now. We can only build the way we imagine. In our theories we imagined the wrong way, as a result, we got ourselves a wrong world. Now reformulating our axioms the right way, we can create the right world.

In the "right" world, we'll have to forget that people should wait around to get hired by somebody. There is a strong active element in each human being — the hunter and gatherer instinct. That's what made us survive and flourish in our initial years on this planet. It is still a very precious element in us. But our current economic system has made us forget our own instinct. We have to instill in everybody's mind that each person creates his or her own job, individually or collectively. We'll have to build institutions in such a way that each person is supported and empowered to create his/her own job (self-employment). Wage employment will come into the picture only as an alternative to self-employment. The poor, women, minority groups, physically handicapped and socially handicapped persons will benefit immediately.

Take the case of Grameen system. It makes it easy for a traumatized poor "nobody" to take the leap and become an enterprising "somebody." Two million borrowers of Grameen, mostly women, turned themselves into confident business-women. They own the bank. They borrow half a billion dollars a year in tiny loans. They build themselves respectable houses with housing loans. They send their children to school. They have saved over \$100 million in their savings accounts. They have made the world sit-up and questions the age-old banking dogma which says

that the poor are not creditworthy, and allows the banks to write off billions of dollars of their loans to the rich, each year, as bad debts, without blinking their eyes.

Let us admit it, poverty is not created by the poor. Poverty is created by the existing world system which denies rightful opportunities to the poor.

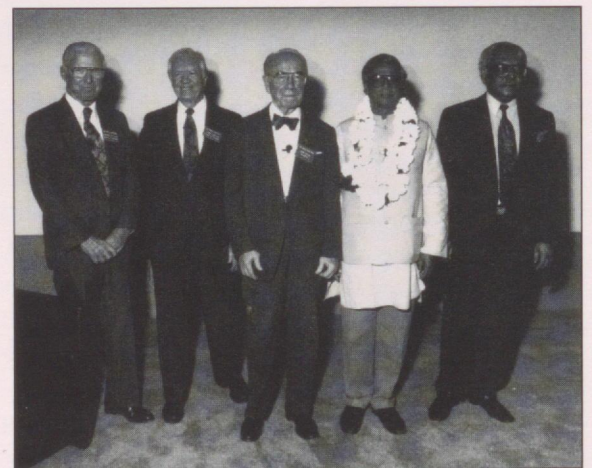
Let us recognize that poverty is the denial of all human rights to a person. By removing poverty not only do we remove hunger, we also ensure other human rights — right to shelter, education, health, and political freedom.

Grameen is a very exciting experience for us. With this experience we are totally convinced that poverty and hunger can be eliminated from this world once and for all. All it needs is a firm global will to achieve it. I hope the world will soon get convinced too. The World Food Prize is dedicated to creating this will. With the powerful leadership behind this Prize, it will play a significant role in influencing the world and generating a firm will.

I assure you, Mr. Chairman, ladies and gentlemen, in my own capacity, I'll work harder to bring the day closer when this planet will be free from hunger and poverty.

With gratitude and humility I accept the honour you have bestowed upon me.

Thank you very much. ■



Dr. Norman Borlaug, Nobel Peace Prize laureate and World Food Prize Council of Advisors member, former President Jimmy Carter, also a member of the World Food Prize Council of Advisors, John Ruan, Chairman of the World Food Prize Foundation, Dr. Muhammad Yunus, the 1994 World Food Prize laureate and His Excellency Humayun Kabir, Ambassador of Bangladesh gather following the World Food Prize award ceremony in Des Moines.



THE WORLD
FOOD PRIZE

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Office of the Secretariat
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Iowa State University
Ames, Iowa 50011 USA
Tel (515)294-2518
Fax (515)294-6800

Past Laureates

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He Kang,

former Minister of Agriculture of the People's Republic of China, provided the leadership to implement the agricultural reforms that caused agricultural output in the early 1980s to grow in excess of eight percent per year and made China self-sufficient in basic food for the first time in modern history.

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Dr. Edward F. Knipling and Dr. Raymond C. Bushland,

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Dr. Nevin S. Scrimshaw

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Dr. Verghese Kurien turned the milksheds of India into cooperatives that produce, process, and market milk in urban centers of the country.

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The World Food Prize Council of Advisors

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To receive more information about The World Prize please contact: The World Food Prize Foundation, 601 Locust Street, Suite 350, Des Moines, Iowa 50309 USA. Tel (515) 245-3783, Fax (515) 245-3878.

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John Ruan

Chairman
The World Food Prize Foundation
Des Moines, Iowa, USA

Norman E. Borlaug, Ph.D.

Nobel Peace Prize Laureate
President, Sasakawa Africa Association
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The Honorable Jimmy Carter

Chairman
The Carter Center
Atlanta, Georgia, USA

A. S. Clausi

President, Institute of Food Technologists
Senior Vice President, Ret.
General Foods Corporation
Cos Cob, Connecticut, USA

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Director
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Reston, Virginia, USA

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Pekka Linko, Ph.D.

Professor
Biotechnology and Food Engineering
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Herman C. Kilpper

Executive Director
The World Food Prize Foundation
Des Moines, Iowa, USA



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**DATED INFORMATION INSIDE
1995 World Food Prize Nomination Procedures.**



WINTER 1993

THE WORLD FOOD PRIZE *Report*

PUBLISHED BY THE WORLD FOOD PRIZE FOUNDATION

World Food Prize Awarded to Long-Time Chinese Government Official



He Kang (left) receiving the 1993 World Food Prize from John Ruan, Chairman of The World Food Prize Foundation, and Dr. Norman Borlaug, Nobel Peace Prize Laureate and Chairman of The World Food Prize Selection Committee.

The 1993 World Food Prize has been awarded to He Kang, former Minister of Agriculture of the People's Republic of China. Minister He Kang provided the leadership that enabled China, in little more than a decade, to become self-sufficient in basic food for the first time in modern history. This is a major accomplishment when one considers that China, with over one billion people, has twenty-two percent of the world's population but only seven percent of its arable land.

Former President Jimmy Carter, in videotaped remarks prepared for a Washington news conference at which Minister He Kang appeared, praised the laureate's contribution to the supply of food for China, which helps to open up China to the outside world, and in the long run will improve the free market system, will improve human rights, and will let us all participate in a better world.

He Kang was introduced at the news conference by former World Bank President and Secretary of Defense Robert McNamara and Dr. Norman Borlaug, who received the 1970 Nobel Peace Prize for increasing food production in developing countries. Both men serve with President Carter as members of The World Food Prize Council of Advisors.

"China's agricultural gains under the stewardship of Minister He Kang amount to something of a miracle, a human development miracle that has gone largely unnoticed in the West," McNamara said. "One does not have to

(continued on next page)



He Kang and his wife, Yu Junmin, are congratulated by President Clinton.

ATTENTION

**1994 World Food Prize
Nomination Procedures inside.**

World Food Prize Awarded

(continued from page 1)



He Kang with Premier Zhou Enlai at Hainan Tropical Academy examining new rubber varieties, 1960.

“China has contributed to the agricultural development of the world by being able to feed 22 percent of the world’s population on 7 percent of the world’s arable land. As a member of the world, China needs cooperation with world agriculture. This can promote China’s agriculture to a new stage and is conducive to the common development of world agriculture.”

Minister He Kang

read statistical reports to see the results. They are apparent across the face of China in the obvious widespread availability of food and the healthy appearance of young and old.”

Dr. Borlaug, father of the “Green Revolution” that dramatically improved crop yields in developing countries, said China’s agricultural strides during the last two decades have generally gone unnoticed by the American public. “Many believe that China’s agriculture system is archaic and unproductive,” Borlaug observed. “That impression is far from the truth.”

Iowa businessman John Ruan, Chairman of The World Food Prize Foundation, lauded He Kang’s work and said the new laureate was a living symbol of ideals The World Food Prize was created to promote. “With the global population increasing by 11,000 people hourly, all nations will continuously have to struggle with increased food needs,” Ruan said.

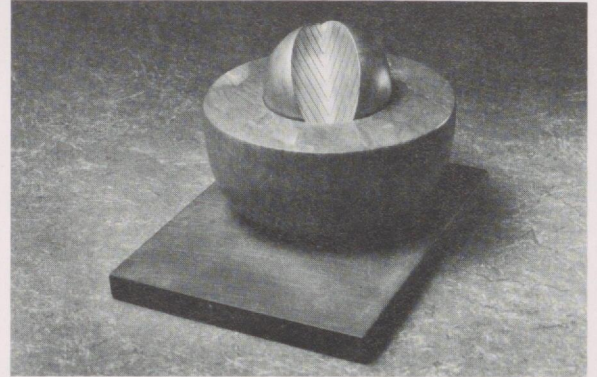
The World Food Prize was founded in 1986. In 1990, John Ruan established The World Food Prize Foundation in Des Moines, Iowa and assumed sponsorship of The World Food Prize. The Iowa State University College of Agriculture serves as secretariat to The Prize.

Information about The World Food Prize program is available by calling (515)245-3783.



He Kang in Dengzhou City, China, inspecting the “Taiyou No. 2” oil crop, May, 1989.

A Prize for the World



The commemorative sculpture of The World Food Prize was created by world-renowned designer Saul Bass. This sculpture symbolizes the world, its food and the nourishment of its peoples.

The World Food Prize is the foremost international award recognizing outstanding individual achievement in improving the quality, quantity, or availability of food in the world.

The Prize emphasizes the importance of a nutritious and sustainable food supply for all people. By honoring those who have worked successfully toward this goal, The World Food Prize calls attention to what can be accomplished in the future.

The prize recognizes achievements in any field involved in the world food supply, including food and agricultural science and technology, manufacturing, marketing, nutrition, economics, political leadership, the social sciences, and other related fields.

The laureate receives \$200,000 and a sculpture created by world-renowned designer Saul Bass. The award is based solely on individual achievement with no consideration of nationality, ethnic origin, political persuasion, religious beliefs, sex or age.

Norman E. Borlaug—winner of the Nobel Peace Prize for his work in world agriculture—envisioned a prize that would honor individuals who have made significant and measurable contributions to improving the world’s food supply. Beyond recognizing these people for their personal accomplishments, he saw the prize as a means of establishing role models who would inspire others. His vision was realized when The World Food Prize was created.

1994 Nomination Procedures

Any institution or organization may submit a nomination for The World Food Prize laureate. An organization may submit as many nominations as it sees fit, and all nominations are confidential. Individuals may submit nominations if the nomination has been endorsed by an institution or organization.

The nominee must be living and must personally have made a significant, applied contribution that has increased the quality, quantity, or availability of food. Normally, the prize is awarded to one person, but it may be shared by partners in a specific activity.

To submit a nomination, please give us the following information, in the order shown, in English, French, or Spanish:

Name

Nominee's name, affiliation, address, and telephone number. Attach a recent photograph of the nominee.

Biographical Information

Date and place of birth, education, positions held (in public and private organizations), professional affiliations, honors and awards.

Personal

In one or two typed pages, describe the nominee's personal contribution to increasing the quality, quantity, or availability of food. The candidate should be nominated for one specific, measurable, and sustainable achievement that has brought food to the world's people.

Nominating Organization

Name of nominating organization, address, and telephone number. The nomination must be signed by the chief executive officer of the nominating organization, certifying the accuracy of the information. The identity of the nominating organization is kept in strict confidence.

Date

Date of nomination.

Seconding Nominations

Letters seconding the nomination from three individuals who are familiar with the nominee's work.

Supporting Documents

Documents that support your description of the nominee's personal contribution. These may include general articles about the nominee's activities and trends in the nominee's field and appropriate, significant publications by the nominee. Please send only one copy of each document.

If your nominee is not selected to be the laureate, your nomination can be reconsidered for two years. However, you must send us written confirmation each year of your wish to renominate and provide updated supporting documents.

If your nominee becomes The World Food Prize laureate, the information contained in the description of personal contribution and the supporting documents may be used to prepare news materials about the winner.

Your nomination must be postmarked by March 15, 1994, to be considered. Send your nomination to:

The World Food Prize

Office of the Secretariat
David G. Topel, Dean
College of Agriculture
Iowa State University
Ames, Iowa 50011 USA
Tel (515)294-2518
Fax (515)294-9477



THE WORLD
FOOD PRIZE

Past Laureates

1992

Dr. Edward F. Knipling and Dr. Raymond C. Bushland, a team of entomologists, developed the Sterile Insect Technique (SIT), an environmentally friendly method of controlling or eradicating insect pests that threaten the world's food supply.

1991

Dr. Nevin S. Scrimshaw, developed the principle for low-cost, protein-rich food products to help prevent malnutrition in developing countries.

1990

Dr. John S. Niederhauser discovered and utilized a durable resistance to the potato late blight disease, which boosted the food supply and improved nutrition for many nations.

1989

Dr. Verghese Kurien turned the milksheds of India into cooperatives that produce, process, and market milk in urban centers of the country.

1988

Dr. Robert F. Chandler, Jr. guided the development and distribution of new varieties of rice with double and triple the yield potential of traditional rice.

1987

Dr. M. S. Swaminathan, architect of India's "Green Revolution," led the introduction of high-yielding wheat and rice to Indian farmers.

The World Food Prize Council of Advisors

The World Food Prize Report is published by The World Food Prize Foundation.

To receive more information about The World Prize please contact: The World Food Prize Foundation, 601 Locust Street, Suite 350, Des Moines, Iowa 50309 USA. Tel (515) 245-3783, Fax (515) 245-3878.

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John Ruan

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Des Moines, Iowa, USA

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Nobel Peace Prize Laureate
President, Sasakawa Africa Association
Former Director, Wheat--CIMMYT
Mexico City, Mexico

The Honorable Jimmy Carter

Chairman
The Carter Center
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Address Correction Requested

DATED INFORMATION INSIDE
1994 World Food Prize Nomination Procedures.