Controlling Crop Diseases

Scot Hulbert
Cook Chair for Cropping Systems Pathology, Department of Plant Pathology

CURRENT RESEARCH

Understanding plant diseases to ensure food security

Population projections indicate that there will be nine billion people to feed by 2050. That is a large number, and every grain of wheat counts. About a fifth of the calories consumed by humans globally comes from wheat, and when the resistance to a cereal disease like a rust fungus fails, crop losses follow, causing epidemics in places like Africa and Asia. Controlling rusts by genetics in the future must be done in a more stable manner than it is now, because we are currently expending too large of an effort with too many failures. For example, developing countries are suffering much crop loss in an unpredictable fashion; other countries, like the US, are relying too heavily on pesticides. Dr. Scot Hulbert, Cook Chair for Cropping Systems Pathology at Washington State University, develops genetic approaches to control crop diseases while reducing the use of pesticides. By engineering crop resistance to pathogens, Dr. Hulbert hopes to improve food security in the US and in other countries.

The easiest and most efficient way to control serious losses to plant diseases is by planting disease resistant crop varieties, but plant pathogenic microbes evolve very rapidly to overcome each new variety. Specifically focusing on wheat, Dr. Hulbert is therefore researching why some sources of resistance are more durable than others, and furthermore, looking for methods to engineer durable resistance. Dr. Hulbert also collaborates with several wheat breeding programs around the country and at international centers, as the breeding teams are important for getting his results into the farmers' hands and fields. Supported by the USDA's AFRI program to characterize cereal rust effectors, Dr. Hulbert's team has an...

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AFFILIATION

Washington State University

EDUCATION

- Postdoc in Biology 1989 ,Purdue University
- Ph.D. in Genetics 1987,University of California, Davis
- M.S. in Vegetable Crops 1982, University of California, Davis
- B.S. in Horticulture 1979, Washington State University

AWARDS

- Fellow, American Society for the Advancement of Science, 2005
- Fellow, American Society of Phytopathology, 2002
- Distinguished Graduate Faculty Award, KSU, 2002

RESEARCH AREAS

Environment, Ecology, Global Policy

FUNDING REQUEST

Your contributions will help fund the continued research of Dr. Scot Hulbert and his team at Washington State University as they learn how to control crop diseases without the use of pesticides. Donations will support the personnel of four graduate students, a postdoctoral fellow, a field technician, and hopefully more members in the future who have devoted their time and effort to making crops widely available. Partner with the team to ensure food security for the US and the world!