Small Boosts to the Plant Immune System Yield Dramatic Results

Roger Innes
Professor, Biology

CURRENT RESEARCH

Enabling plants to fight off disease

Since 1970 the human population has nearly doubled, growing from 3.7 billion to 7.3 billion, and is projected to surpass 10 billion in 2061. Making matters worse, increasing wealth in developing countries such as India and China is leading to increased meat consumption, which requires an even greater increase in grain production. This combination of population growth and increased consumption of meat means that we need to double our grain production by 2050. If we cannot dramatically increase crop yields, the world faces widespread famine, which will trigger massive civil unrest. Dr. Roger Innes, of Indiana University, researches the molecular mechanisms that plants use to fight off disease in order to develop crop plants that are immune to economically important diseases. Such immunity can dramatically increase crop yields and in addition, would reduce the use of environmentally damaging pesticides. With the need to increase crop yields in a sustainable manner being one of the most pressing issues of our time, Dr. Innes' research would provide for a much less environmentally damaging agricultural system in addition to an innovative solution!

Since 1988, Dr. Innes has made great progress towards understanding the basic molecular mechanisms that plants use to detect pathogens. He and his team are now applying this knowledge to develop crop plants that are resistant to specific diseases. In fact, Dr. Innes' laboratory was the first to establish a system by which the disease resistance capacity of an individual plant could be easily expanded by making very minor changes to existing genes. In the future, he and his team hope to apply their findings to crop plants outside of the laboratory. This technology has the...

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AFFILIATION

Indiana University Bloomington

EDUCATION

- Postdoc in Biology 1991,University of California, Berkeley
- Ph.D. in Biology 1988,University of Colorado
- B.A. in Biology 1982,Humboldt State University

AWARDS

- American Association for the Advancement of Science Fellow
- American Academy of Microbiology Fellow
- Teaching Excellence Recognition Award

RESEARCH AREAS

Environment, Ecology, Global Policy

FUNDING REQUEST

Your contributions will support the continued research of Dr. Roger Innes, of Indiana University, as he creates sustainable methods to increase crop yields. Your donations of $200K per year will support a research project. Funding Dr. Innes' research, which is focused on developing plants that are resistant to pathogens, will allow you to play a part in protecting our planet, while increasing crop production to meet the needs of our growing population.