

# Late Blight: A Threat to Global Food Security

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It is both an honor and a privilege to address such a distinguished international gathering from so many countries, and to initiate this important conference on potato late blight, a plant disease that has been a problem in world food production for over 150 years.

In the excellent program that has been designed by the organizers of the conference, the participants will present the most recent advances in research on late blight. One of the most significant contributions of this conference would be to summarize the data and results presented, evaluate their potential contribution to potato production in the world, and then make some specific choices and recommendations on how to utilize this information in a world-wide, cooperative effort to control potato late blight.

Why is it so critical to establish this international collaboration to control potato late blight? Part of the answer lies in a brief, modern history of the potato.

In the remarkably short time of the last four centuries, the potato has emerged from its native home in the Andes of South America and has become one of the four major food crops of the world.

During the past two centuries, the major impact of the potato as a world food crop has been in the industrialized countries of the world. According to the FAO, as recently as 1950, approximately 93% of world potato production was in the industrialized world and only 7% in the developing countries. However, during the past 50 years, potato production has rapidly expanded in these developing countries, both in area planted and

in productivity. Today these countries are producing more than 30% of the world's potato crop.

There is every indication that this trend will continue. However, a very important limiting factor in the further development of the potato in these developing countries is the fact that there is little or no more irrigated land available. If the potato is to continue its rapid rise in importance in these countries, it will be due to expansion onto land fed by rainfall. Since most of the currently available potato varieties are susceptible to late blight, they must be sprayed with fungicides.

Most farmers in these developing countries, particularly the subsistence farmers, are not able to meet the increased costs of agricultural chemicals. Thus, we are already observing a tendency for the rapid rate of increase in potato production to slow down in some of these developing countries.

What is the answer? If the potato is to resume and continue rapid growth in the developing countries, it will be sustained by the cultivation of varieties with a durable resistance to late blight which require less chemical fungicide.

In the industrialized countries, the potato continues to be an important food crop. However, during the past 20 years, a new strain of the late blight fungus has burst out all over the world. This has affected not only the levels of late blight resistance in the potato itself, but has introduced strains that are resistant to some of the most widely used fungicides. Suddenly, the control of late blight has become more uncertain and more expensive.

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Today, more chemicals are applied to the potato than to any other food plant we grow. And as even more chemicals are used to control late blight, a new problem has emerged. Those interested in preserving the quality of the environment are urging that fewer chemicals be applied to our food crops rather than more. Legal measures are being taken to make this change obligatory.

What is the potato grower to do?

The answer is not a simple one, but higher levels of a durable blight resistance must be a major component of the new potato cultivars, along with maintenance of high levels of productivity and requirement of fewer chemicals.

As we proceed into the next century and millennium, the control of potato late blight will become increasingly important in the global effort to feed a rapidly expanding population. It is anticipated that by the year 2100—only one century away—the world population will reach at least 12 billion. This is more than double what it is today. In the search for a sustainable agriculture that can feed this expanding population, it is also very important to realize that, by the year 2100, nearly 90% of this world population will be in what today are the developing countries of the world.

This presents a critical challenge as we enter the new millennium. How are we to feed this expanding population using essentially the same natural resources while preserving the quality of the environment? Fortunately, the potato has a number of excellent characteristics that make it a prime candidate to help implement a worldwide effort to feed so many more people. But it is far more likely that the potato can fulfill this promising role only if it has a durable resistance to late blight.

Here at this GILB conference, it is most reassuring to recognize the excellent representation by so many delegates from the developing countries.

At this international meeting in Quito, the delegates will be presenting the latest and most reliable data on the various factors affecting the spread and severity of this new epidemic of potato late blight, and how we might cope with it most successfully.

There will be much new and reliable information. Then comes the next step in a search for a solution. To meet this world problem, there must be created and established the bases for international collaboration in the application of these new technologies for the control of potato late blight.

There are already in place some of these international cooperative programs that will be needed to implement

this collaboration— GILB, ECOPAPA, CEEM, CEENP and PICTIPAPA. Each of these programs can offer unique materials and services in a worldwide cooperative effort. Each could accept the responsibility for providing the leadership in projects for which it has a comparative advantage.

In an effective international cooperative program, there are four components, each of which has a role to perform: (1) the government; (2) the technical sector; (3) the private sector; and, of course, (4) the farmers. It should be the responsibility of the delegates to this GILB conference to start the process of defining the responsibilities and strategies to be assigned to each group.

The role of the government and that of the technical sector is rather well established in most countries, and will be apparent in many of the presentations at this conference.

In my opinion, during the last few decades, there has been a growing realization of the importance of the role of the private sector in a continuing economic effort to increase agricultural production.

And, finally, there is the role of the farmer. If the farmers are increasing productivity by using new, economically viable technologies, then the program is a success. If not, then the program is a bureaucratic and technical exercise.

In my opinion, one of the most important events to be held at this GILB conference will be the Sessions 8, 9 and 10, on Thursday afternoon and Friday. First, there will be an opportunity to learn how subsistence farmers can take advantage of new technologies. There are already some of these programs in place, such as the CARE/CIP model. And there are other programs elsewhere, perhaps dealing with other crops, that might be studied as useful models, such as GLOBAL 2000 in Ethiopia and the CIAL in Colombia.

Then several of the established international cooperative programs are scheduled to describe their priorities and collaboration on potato late blight.

And finally, on Friday, the GILB program will be presented and analyzed to help determine how collaboration might best be established in worldwide projects to control potato late blight.

If the delegates define specific strategies to implement some of the proposed international cooperation, this GILB Conference could be one of the most important events in the 150-year history of our efforts to control potato late blight.