

Agriculture Takes Its Turn in the Genome Spotlight

By CAROL KAESUK YOON

In a scientific first, and a coup for science in Brazil, a team of more than 200 researchers there has for the first time deciphered the complete DNA sequence of an organism that causes a plant disease.

Though other genome sequencing efforts — for example, in humans or the laboratory staple fruit fly — have attracted more attention, the Brazilian target, an odd little bacterium known as *Xylella fastidiosa*, distinguishes itself as the first to be decoded of the countless nasty species that together cost farmers and foresters many billions of dollars each year. This particular organism can cause diseases in oranges, grapes, al-

monds, plums, peaches, alfalfa, oaks, elms and other plants.

"Everyone is quite thrilled," said Dr. Andrew Simpson, a molecular biologist at the Ludwig Institute for Cancer Research in São Paulo, Brazil, and one of the team leaders. "It's probably the biggest ever scientific project in Brazil."

The team has been feted by the president of Brazil and serenaded by orchestras, and a new scientific prize was invented just to be given to the team. It was an achievement for developing nations' science as well, Dr. Simpson said, as this was the first complete sequence to come from outside the United States, the United Kingdom or Japan.

The consortium of scientists unveiled the full genome sequence of this bacteri-

Lessons about plant diseases drawn from a bacterium's DNA.

um in the current issue of the journal *Nature*.

Scientists said *xylella's* genome has already begun teaching biologists lessons about how pathogens evolve and about the destruction they cause. By revealing exactly which proteins this bacterium enlists to build itself and live its life, the complete sequence has also begun pointing the way toward methods for curbing this particular strain of the bacterium that attacks orange trees.

The report contains surprises, including the presence of genes thought to be peculiar to animal pathogens and a complete lack of some genes thought to be essential to plant disease organisms.

"It's going to be the standard against which all subsequent studies will be compared," said Dr. Edwin Civerolo, a plant pathologist with the U.S.D.A. Agricultural Research Service at the University of California at Davis. "It gives you the basis for designing novel and unique strategies for dealing with the disease, things we'd never thought of before."

Perhaps most surprising is that all this insight has come from an organism about which almost nothing was previously known.

Dr. Alan Collmer, a plant pathologist

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THE NEW YORK TIMES, TUESDAY, JULY 18, 2000

the Status of Cholesterol Drugs

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Worse, about a third of heart at- treat themselves. In one study, half

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