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THE FOOD CHAIN

## World's Poor Pay Price as Crop Research Is Cut

By [KEITH BRADSHER](#) and [ANDREW MARTIN](#)

LOS BAÑOS, Philippines — The brown plant hopper, an insect no bigger than a gnat, is multiplying by the billions and chewing through rice paddies in East Asia, threatening the diets of many poor people.

The damage to rice crops, occurring at a time of scarcity and high prices, could have been prevented. Researchers at the International Rice Research Institute here say that they know how to create rice varieties resistant to the insects but that budget cuts have prevented them from doing so.

This is a stark example of the many problems that are coming to light in the world's agricultural system. Experts say that during the food surpluses of recent decades, governments and development agencies lost focus on the importance of helping poor countries improve their agriculture.

The budgets of institutions that delivered the world from famine in the 1970s, including the rice institute, have stagnated or fallen, even as the problems they were trying to solve became harder.

“People felt that the world food crisis was solved, that food security was no longer an issue, and it really fell off the agenda,” said Robert S. Zeigler, the director general of the rice institute.

Vital research programs have been slashed. At the rice institute, scientists have identified 14 genetic traits that could help rice plants survive the plant hopper, which sucks the juices out of young plants

while infecting them with viruses. But the scientists have had no money to breed these traits into the world's most widely used rice varieties.

The institute is the world's main repository of rice seeds as well as genetic and other information about rice, the crop that feeds nearly half the world's people.

But nowadays at the International Rice Research Institute, greenhouses have peeling paint and holes in their screens and walls. Hallways are dotted with empty offices. In the 1980s, the institute employed five entomologists, or insect experts, overseeing a staff of 200. Now it has one entomologist with a staff of eight.

"We've had an exodus here," said Yvette Naredo, an assistant geneticist.

Similar troubles plague other centers in Asia, Africa and Latin America that work on crop productivity in poor countries. Agricultural experts have complained about the flagging efforts for years and warned of the risks.

"Nobody was listening," said Thomas Lumpkin, director general of the International Maize and Wheat Improvement Center in Mexico.

Now, a reckoning is at hand. Growth of the global food supply has slowed even as the population has continued to increase, and as economic growth is giving millions of poor people the money to buy more food.

With demand beginning to outstrip supply, prices have soared, and food riots have erupted that have undermined the stability of foreign governments. World leaders are scrambling to respond. On May 1, President Bush asked Congress for an extra \$770 million to pay for [food aid](#) and to help farmers improve their productivity.

But cuts in agricultural research continue. The United States is in the midst of slashing, by as much as 75 percent, its \$59.5 million annual support for a global research network that focuses on improving crops

vital to agriculture in poor countries. That network includes the rice institute.

Robert Bertram, who oversees the funding for the United States Agency for International Development, said he was still trying to stop the cuts and argued that research to improve crop yields was “like putting money in the pockets of poor people, and I mean billions of poor people.”

The [Agency for International Development](#) is the primary vehicle for the American government to finance development projects abroad. James R. Kunder, its acting deputy administrator, said the agency hoped to reconsider the cutbacks if Congress allows extra money.

Crop by crop and country by country, agricultural research and development are lagging.

The center in Mexico has created drought-tolerant corn for Africa and higher-yielding, disease-resistant wheat for South Asia. But it does not have the money to get the varieties into the hands of poor farmers.

In Africa, where yields have remained stagnant since the 1960s, efforts to bolster them have been hampered by cuts not only in research but also in programs like fertilizer distribution.

Even in the United States, long a world leader in agricultural research, some money has been shifted away from crop-productivity work into issues like nutrition and food safety.

The biggest cutbacks have come in donations to agriculture in poor countries from the governments of wealthy countries and in loans from development institutions that the wealthy governments control, like the [World Bank](#). Such projects include not only research on pests and crops but also programs to help farmers adopt improved methods in their fields.

Adjusting for inflation and exchange rates, the wealthy countries, as a group, cut such donations roughly in half from 1980 to 2006, to \$2.8

billion a year from \$6 billion. The United States cut its support for agriculture in poor countries to \$624 million from \$2.3 billion in that period.

“Agriculture has been so productive and done so well, people have kind of lost sight of how fragile it really is,” said Jan E. Leach, a plant pathologist at [Colorado State University](#) who works with rice. “It’s as if we have lost track of the fact that food is linked to agriculture, which is linked to human survival.”

### Cooperation on Crops

Agricultural research and development work is never done. The demand for food keeps growing. Insects and plant diseases adapt, overcoming efforts to thwart them.

In the 1960s, population growth was far outrunning food production, threatening famine in many poor countries. But then wealthier nations joined forces with the poor countries to improve crop yields. Countries like India and Pakistan embraced new plant varieties, irrigation projects and fertilizer programs in a vast effort that came to be known as the Green Revolution.

Yields soared, and by the 1980s, the threat of starvation had receded in most of the world. With Europe and the United States offering their farmers heavy subsidies that encouraged production, grain became abundant worldwide, and prices fell.

Many poor countries, instead of developing their own agriculture, turned to the world market to buy cheap rice and wheat. In 1986, Agriculture Secretary John Block called the idea of developing countries feeding themselves “an anachronism from a bygone era,” saying they should just buy American.

Additional factors prompted wealthy countries to shift their donations away from agriculture. For instance, advocacy groups criticized some of the environmental problems arising from intensive farming, weakening

support for the Green Revolution. And urgent new priorities like the AIDS crisis in Africa captured the world's attention.

Advocates for agriculture fought a losing battle to stop the cutbacks — nowhere more than in the World Bank, the huge institution in Washington that makes low-interest loans to poor countries for development projects.

Adjusted for inflation, the World Bank cut its agricultural lending to \$2 billion in 2004 from \$7.7 billion in 1980.

The Green Revolution had led to creation of a global network of research centers focusing on agriculture and food production, with 14 institutes — including the International Rice Research Institute — scattered across Asia, Africa and Latin America, in addition to a research office in Washington. The centers, known collectively as the Consultative Group on International Agricultural Research, carry much of the burden of improving crop yields in developing countries.

As the world lost its focus on crops, the budgets of some of the centers were cut. At others, the budgets stayed level or even rose, but donors increasingly directed the money toward worthwhile but ancillary projects like environmental research. Spending fell on the laborious plant-breeding programs needed to improve crop productivity.

As these trends played out, the stage was being set for a food emergency.

From 1970 to 1990, the peak Green Revolution years, the food supply grew faster than the world population. But after 1990, food's growth rate fell below population growth, according to a report by Ronald Trostle, a researcher at the Agriculture Department.

Around 2004, the world economy began growing more quickly, about 5 percent a year. So as the food supply was lagging, millions of people were gaining the money to improve their diets.

The world began to use more grain than it was producing, cutting into reserves, and prices started rising. Early this year, as stocks fell to perilous levels, international grain prices doubled or even tripled, threatening as many as 100 million people with malnutrition.

### Slow Recovery for Aid

At the World Bank, agricultural financing has begun to recover. Under a new president, [Robert B. Zoellick](#), the bank has decided to double its lending for such programs in Africa. After President Bush's request to Congress, other wealthy countries are joining the United States in increasing their support.

But the case of the brown plant hopper shows there will be no quick fix for the years of neglect.

The insect is not a new problem. In the 1960s, the rice institute, nestled between jungle and the bustling town of Los Baños, pioneered ways to help farmers grow two and even three crops a season, instead of one.

But with rice plants growing more of the year, the hoppers — which live only on rice plants — had longer to multiply, and became a bigger concern.

The institute responded by testing thousands of varieties of wild rice for natural resistance. Researchers found four types of resistance and bred them into commercial varieties by 1980.

But brown plant hoppers adapted swiftly, and the resistant strains started losing their effectiveness in the 1990s. An important insecticide lost its punch, too, as the hopper developed the ability to withstand up to 100 times the dose that used to kill it.

While the insect was adapting, the rice institute was being gutted.

Its money comes from government donations, foundation grants and assistance from development institutions like the Asian Development Bank, an affiliate of the World Bank. After peaking in the

early 1990s, the rice institute's budget has been cut in half after adjusting for inflation, a reflection of the larger cutbacks in global agriculture.

Several dozen important varieties of rice have been lost from the institute's gene bank through poor storage. Promising work on rice varieties that could withstand high temperatures and saltier water — ideal for coping with [global warming](#) and the higher sea levels that may follow — had to be abandoned.

A potential solution is at hand for the plant hopper problem. No fewer than 14 new types of genetic resistance have been discovered. But with the budget cuts, the institute has mounted no effort to breed these traits into widely used rice varieties.

Doing so now would take four to seven years, if money could be found. In the meantime, the hoppers have become a growing threat. China, the world's biggest rice producer, announced on May 7 that it was struggling to control the rapid spread of the insects there. A plant hopper outbreak can destroy 20 percent of a harvest; China is trying to hold losses to 5 percent in affected fields.

“We must stay ahead of rapidly evolving pests — and increasingly, a changing climate — to assure global food security,” said Mr. Zeigler, the rice institute's director. “Cutting back on agricultural research today is pure folly.”