

Fertilizer: To Nourish Infertile Soil that Feeds a Fertile Population that Crowds a Fragile World

By Norman E. Borlaug and Christopher R. Dowsell

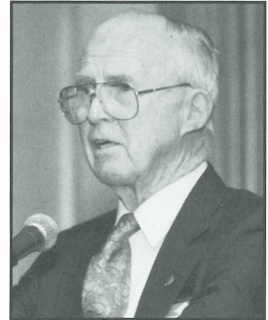
This article is a summary of the keynote address, presented by the authors, at the 61st Annual Conference, International Fertilizer Industry Association (IFA), May 1993, in New Orleans, LA.

THE ONLY WAY for agriculture to produce sufficient food to keep pace with population and to alleviate the hunger of the world's poor is to increase the intensity of agricultural production in those ecological conditions which lend themselves to intensification while decreasing the intensity of production in the more fragile ecologies.

Most of the increases in food production needed over the next several generations must be achieved through yield increases on land now under cultivation. Moreover, these yield increases must be achieved through the application of technology already available or well advanced in the research pipeline. This will not only lead to economic development but it will also do much to solve the serious environmental problems that come as a consequence of trying to cultivate lands that are not suited to crop production. Fortunately, many of the more-favored agricultural lands currently under cultivation are still producing food at yield levels far below their potential.

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greatest need is in sub-Saharan Africa, which faces the horrifying prospect of producing only 75 percent of its food requirements by the year 2000, unless fertilizer use is tripled and combined with higher-yielding varieties and improved crop management practices. Surely, raising the average use of plant nutrients from less than 10 kg/ha (9 lb/A) to something like 30 kg/ha (27 lb/A) cannot be an environmental problem, only an environmental solution. Fertilizer use also must be expanded in Latin America—especially in the favored lands of Argentina, Brazil and Uruguay—and in South Asia, where the Green Revolution appears to have lost its momentum.

To achieve the needed production increases and to distribute the food equitably in the low-income, food-deficit countries will require the sustained and

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focused support of governments, international development agencies, and the private agribusiness sector. This task will not and cannot be achieved without major new investments in the agricultural sectors of the developing countries, particularly in the areas of transportation, fertilizer and seed supply, and water resource development.

At the closure of the Rio Summit, 425 members of the scientific and intellectual community presented to the Heads of State and Government what is now being called the Heidelberg Appeal. Since then, nearly 3,000 scientists at last count have signed. Permit us to quote the last paragraph of the Appeal:

“The greatest evils which stalk our Earth are ignorance and oppression, and not Science, Technology and Industry, whose instruments, when adequately

managed, are indispensable tools of a future shaped by Humanity, by itself and for itself, in overcoming major problems like overpopulation, starvation and worldwide diseases.”

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For those of us on the food production front, let us all remember that world peace will not—and cannot—be built on empty stomachs. Deny farmers access to modern factors of production—such as improved varieties, fertilizers and crop protection chemicals—and the world will be doomed—not from poisoning, as some say, but from starvation and social chaos. ■



OPPORTUNITIES for increased crop production exist in most regions of the world. Improved agronomic practices are essential for progress in developing countries.