

Statement of Impact

The agronomic research program of Dr. S.K. De Datta had an extraordinary impact on rice farmers and consumers throughout the world. His pioneering work to develop the appropriate fertility and crop management practices for the Green Revolution varieties in rice dramatically increased yields, raised farmers' incomes, and lowered the cost of rice to consumers. The greater incomes spurred demands for farm inputs, milling and marketing services, and a general demand for consumer goods, thereby stimulating rural non-farm economies, which in turn expanded employment opportunities and reduced poverty. Without Dr. De Datta's research, the yield advantage of a line such as IR-8-288-3 would not have been discovered for a longer period of time, which would have delayed the release and adoption of the semi-dwarf varieties, costing farmers and consumers millions of dollars. Without the input packages he developed, yields and returns of semi-dwarf varieties would have been much lower, and hence so would have been their adoption.

According to Robert Evenson and Doug Gollin ("Assessing the Impact of the Green Revolution," *Science*, Vol. 300, May 2, 2003, p. 760), in the 1960s and 1970s, food crop production grew around 3.6% per year in Asia, where rice is the largest crop and 90% of the world's rice is produced and consumed. Yield growth accounted for 3.1 of that 3.6% growth during that period. About 0.7 % out of that 3.1% was due to effects of improved varieties while 2.4 % of it resulted from other inputs per hectare. The role of improved management practices associated with those inputs was highly complementary to the improved varieties, and a major source of the growth. Evenson and Gollin (P.761) estimate that without research at the international agricultural research centers (IARCs) such as IRRI, the national research systems in developing countries might have only produced about two thirds of the productivity gains that can be attributable to improved technologies in those countries from 1965 to 2000. Without the IARCs' contribution to the Green Revolution, yields would have been eight to nine percent less over the period and production would have been 6.5 to 7.3 percent less. Without complementary national and international agricultural research, caloric intake in the developing world would have been 13.3 to 14.4 percent lower, 6.1 to 7.9 percent more children would have been malnourished, and the health status of 32-42 million preschool children was significantly improved every year. According to IFPRI ("Green Revolution, Curse or Blessing," Washington, D.C., 2002), the adoption of improved rice varieties and associated management practices occurred rapidly, as about 30% of the rice area was planted to improved varieties by 1970 and by 1990, the share had increased to 70%. Rice yields doubled over that period, improving incomes but also allowing marginal lands to not have to be used for rice production. Real per capita incomes almost doubled in Asia from 1970 to 1995, and rural population below the poverty line decreased from more than 50% to about one-third of the population. Much of these improvements are due to agricultural growth spurred by the Green Revolution. The dollar value of these gains was in the billions, and for roughly three decades, Dr. De Datta was a key player in generating that value. In 1976, Evenson and Flores conservatively estimated the added value due to the improved rice varieties released by IRRI from 1966 to 1975 at more than \$140 million during that period ("Costs and Returns to Rice Research," Resource Paper No. 11,