

THE CGIAR FUND

SECURING INVESTMENTS FOR A FOOD SECURE FUTURE



Returns to Investment in CGIAR Research: Examples of Impact

For over 40 years, CGIAR and its partners have transformed the lives of hundreds of millions of people with the tangible outcomes of agriculture research, including improved crop varieties, sustainable farming methods, new fish strains, novel livestock vaccines and climate-smart solutions.

Better crops for better lives

In Afghanistan, high-yielding wheat varieties have helped poor farming families significantly improve their food security and livelihoods. An independent assessment shows that the potential impact of the technology could be as high as \$400 million – a 10-fold return on the investment – with benefits for tens of thousands of rural people. In addition, new wheat varieties resistant to Ug99, a highly virulent disease, have protected the staple food supplies of 500,000 farming families across Afghanistan, Bangladesh, Ethiopia, Egypt, Nepal, and Pakistan.



In Southeast Asia, rice farmers have been harvesting an extra \$1.46 billion worth of rice each year since 1985 thanks to high-yielding rice varieties, boosting returns by up to \$127 per hectare, lifting farm families out of poverty and contributing to regional food security. New “scuba rice” varieties that survive under water for up to 17 days during flooding are saving the crops, incomes and food security of over 5 million farmers in monsoon Asia. As floods worsen due to climate change, scuba rice could benefit 18 million farm households and save millions more from hunger. In Bangladesh and India alone, rice lost to flooding each year could feed 30 million people.



Dozens of new varieties of drought tolerant maize have been adopted in sub-Saharan Africa, increasing farmers’ yields by 20-30%. Further adoption will benefit 30-40 million people in 13 countries and provide added grain worth US\$ 160-200 million per year in drought-affected areas, generating up to \$1.5 billion in benefits for producers and consumers.

Farmers say drought tolerant maize is “like an insurance against hunger and total crop failure.”

In Central Africa, improved climbing beans – rich in protein -- are tripling farmers’ production, increasing incomes, and providing protection against soil erosion. Some of the improved climbers are also disease resistant and high in iron and zinc, improving nutrition. In Rwanda, Bizimana Jeandascene’s income increased when he started growing climbing beans. With the extra money, he bought cows, using the manure as fuel for his newly-installed biogas generator, which powers a light bulb in his home, enabling his 15-year-old daughter to do her homework and move from 15th position in class to 4th.

Newly developed potato varieties that withstand late blight disease and yielded eight times more than native varieties in the region have made the difference between having enough to eat or not in the Paucartambo province of Peru, where late blight threatened to devastate staple food supplies.

Delivering climate-smart solutions

In Southeast Asia, adoption of improved varieties of cassava that withstand drought, heat and other effects of climate change, has increased yields and generated benefits worth almost US\$12 billion over the last 20 years. Farmers' gross annual income rose by US\$386 million, or US\$51 per family in Vietnam and US\$460 in Thailand.

By integrating food crops with “fertilizer trees,” a climate-smart agroforestry practice delivers the triple win: increased productivity, resilience, and mitigation. The practice more than triples farmers' maize yields and increased incomes and rainwater use efficiency by up to 380 percent; captures and stores up to 4 tons of carbon per hectare annually; and reduces up to 3.5 tons of CO₂ equivalent emissions per hectare per year.

In Malawi, the harvests of Mary Sabuloni, a widow and mother of eight, more than doubled. She can now feed her children year round. Before they often went hungry.

In India, a land rejuvenation initiative known as Bhoochetana improved the productivity and drought resilience of small farms. Using low-cost, science-based solutions, 3 million farmers increased their yields by to 66%, earning them \$500 extra per season, a \$3 to \$14 return for every dollar invested.

In Kazakhstan, the adoption of Conservation Agriculture/no-till (CA-NT) farming technology has increased wheat production by almost 2 million tons, improving incomes, food security and climate change mitigation. The increase in production is equivalent to about \$580 million in incremental income from 2010-2012, satisfies the annual cereal requirements of 5 million people, and sequesters about 1.3 million tons of CO₂ each year. The technology has also saved farmers \$30 million annually in production costs.



Improving the nutrition and incomes of the poor

The selective breeding of Nile tilapia has increased fish yields dramatically, benefiting millions of poor people in 13 Asian countries through increased incomes and employment and improved nutrition. The new strain—known as GIFT— has faster growth rates (exceeding 80%) and a shorter harvest time. In Sri Lanka, GIFT is raising the living standards of poor people and contributing to gender equality, and in the Philippines, GIFT provides affordable protein for more than 20 million poor people.

In eastern Africa, a vaccine against East Coast fever, a deadly disease of cattle, has saved 620,000 calves, benefiting up to 50,000 poor households that rely on livestock for food, nutrition and income. The vaccine could benefit 20 million more people in the region, with annual benefits of \$270 million.



By 2018, 50 million people will have access to more nutritious varieties of staple food crops specifically bred to be rich in key vitamins and minerals – iron, zinc or vitamin A – to combat malnutrition. The crops are also high-yielding, often drought or heat tolerant, and resistant to pests and disease. In Nigeria, farmers are growing cassava rich in vitamin A, a lack of which puts young children at greater risk of infections and in severe cases can lead to blindness and death.

CGIAR research to improve the lives of the poor is both effective and cost-effective. For every \$1 invested in the CGIAR's work, at least \$9 worth of additional food is produced in developing countries. Rates of return on CGIAR's

investments in crop improvement research range from 39% in Latin America to more than 100% in Asia and in the Middle East and North Africa. Few investments, if any, make more economic and humanitarian sense than do investments in CGIAR. *For more information, visit www.cgiar.org.*