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FACT SHEET

DISEASE RESISTANT POTATOES: SOUTH & SOUTH EAST ASIA

DISEASED POTATOES IN ASIA

Potato is a valuable food crop cultivated in Indonesia, Bangladesh, India and elsewhere in Asia primarily by resource-poor farmers. Potatoes are an excellent supplement to rice heavy diets in these regions providing vitamins, nutrients, minerals and supplemental calories. Potato yields are hindered in these regions for many reasons, one of which is a fungus causing the “late blight” disease. The late blight fungus can infect and destroy entire crops in a matter of weeks, having catastrophic effects on resource poor farmers whom depend on potatoes for basic nutrition. Potato is grown on 1.26 million hectares throughout India under diverse weather and topographic conditions. Yield losses due to late blight range from 19% to as much as 75%. In

Bangladesh, potato is grown on 245,000 hectares and annual crop losses from late blight are 20-30%.



Source: ABSPII

Genetically engineered resistant varieties (left) vs. conventional varieties (right)

BIOTECHNOLOGY

A wild relative of the domestic potato contains a naturally occurring gene that confers resistance to the late blight fungus. Efforts to introduce this gene into commercial potato varieties through conventional plant breeding have been unsuccessful. Thus, efforts have been made to introduce the gene into U.S. and Asian potato varieties via genetic engineering.

REGIONAL IMPACT

The USAID funded Agricultural Biotechnology Support Project II (ABSPII), led by Cornell University, currently supports the development of late blight resistant (LBR) potato in Bangladesh, India and Indonesia. This

technology, however, is relevant on a much larger geographic scale and could potentially benefit potato farmers world-wide. In India, economic studies indicate that introduction of the LBR potato would result in doubled net income over existing potato varieties with a minimum estimated 25% increase in yield and significant decrease in pesticide usage. In Bangladesh, similar economic studies indicate LBR potato introduction would result in a 37% increase in net income with minimum estimated 15% increase in yield.

PROJECT STATUS

ABSPII and their regional consortium partners have conducted confined field trials of bioengineered potatoes in Bangladesh, India and Indonesia. Regulatory pathways allowing commercial release are being navigated in several countries to bring this technology to the small holder farmer.

USAID Partner Organizations: Cornell University, University of Wisconsin (USA); Bangladesh Agricultural Research Institute, Bangladesh Agricultural Research Council (Bangladesh); Central Potato Research Institute, Indian Council of Agricultural Research, Sathguru Management Consultants (India); International Potato Research Center (Peru); Indonesian Agency for Agricultural Research and Development (Indonesia).

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