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TRANSFORMATION OF TRADITIONAL ASIAN AGRICULTURE, WHILE MODERN AUSTRALIAN FARMERS BENEFIT

Recently in parts of the vital rice-wheat belt of South Asia, the image of a peasant farmer toiling alone with a buffalo-pulled plough has been transformed, while crop yields have improved and adverse impacts on the environment reduced.

And Australia, through its involvement in a 20 year international research and extension effort, has played a significant role which in turn is offering major benefits to Australian wheat farmers.

“A real agricultural transformation is sweeping across Asia's breadbasket regions that is charting a course toward more ecologically-friendly, higher-producing, cost-effective agriculture,” reported Dr Bob Clements, Director of the Australian Centre for International Agricultural Research (ACIAR).

“Direct-seeding of wheat after rice, or ‘low-till farming’, does away with the intensive, repeated ploughing of farmers' fields needed for wheat crop preparation after rice, and is now transforming the lives of farmers and their families,” said Dr Clements.

“The Australian Government, through ACIAR, can take credit for funding some well-targeted, strategic initiatives that have had a catalytic influence in the adoption of the low-till farming methods now taking hold,” he said.

In India, an important boost to the uptake of low-till technology was the need to control weeds.

“Australia is a world leader in the management of herbicide resistance, and at India's request ACIAR commissioned Adelaide University to work with Haryana Agricultural University and other Indian research institutions to surmount the problems caused by herbicide resistance in prolific annual phalaris weed,” Dr Clements explained. “The research teams sought ways to manage the phalaris through a combination of chemical and non-chemical practices”.

“Adoption of the new practices has lifted wheat yields from a low 2 tonnes per hectare to 4–5 tonnes per hectare, producing much needed additional food and income,” said Dr Clements.

“With the new practices, farmers are finding substantially decreasing weed numbers. Their crops are requiring less fertilizer and water use is reduced by as much as 50% because traditional ploughing dries out the soil. Less fuel is required for running tractors, thereby reducing costs and lowering greenhouse gas emissions,” he said.

Zero-till wheat areas have grown from nil in 1997–98 when the project started, to around 100 000 hectares in Haryana and around 10 000 ha in Punjab in 2000–01.

The ACIAR project has also been responsible for enhancing herbicide resistance management expertise through training of extension officers and farmers in India.

Says Professor Timothy Reeves, the Australian director general of CIMMYT, the wheat improvement centre that has played a major part of the international research effort: "This region of 1.3 billion inhabitants is beset by overcrowding, poverty, and misery. To feed soaring populations, farmers until now have increasingly used more fertilizer, water and herbicides to get the same or greater crop yields from their land. Low-till agriculture enables them to increase their productivity while at the same time decreasing—not increasing—these inputs, he said."

Farmers living in the South Asian countries of Bangladesh, India, Nepal, and Pakistan are taking up low-till farming in such numbers that scientists say that this new agricultural transformation in the 21st Century is poised to be a greener revolution than the Green Revolution of the 1970s.

Scientists believe that other, less tangible benefits, such as in conservation of soil health and long-term maintenance of productivity, will become apparent.

“Australia benefits too,” explained Dr Clements.

Another facet of the project offers major potential benefits for Australia through enhancing the ability of Australian wheat varieties to compete with weeds.

The researchers involved in the project at Adelaide University have found traits that are important for competing strongly against weeds that confront Australian wheat farmers, and have refined the genetic tools for selecting these characteristics.

The ACIAR project is being extended until June 2003, to further promote the uptake of zero-tillage in wheat and extend the technology into rice.

Further background:

<http://www.futureharvest.org/news/lowtill.shtml> and

<http://www.aciar.gov.au/news/India-lowtillage.doc>

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