Rice-wheat rotations provide food and livelihoods for hundreds of millions of rural and urban poor, including the landless, across some 12 million hectares in four countries of South Asia. With help from CIMMYT, South Asian scientists have developed, tested, and promoted various practices that reduce tillage and allow more timely sowing of wheat after rice. In several cases, farmers helped set the agenda, conduct experiments, and devise innovations.

CIMMYT.

Feeding the World without Fouling the Planet

New Tillage Techniques Raise Wheat Yields and Profits, While Saving Resources in South Asia

The Zero-Till Drill

The zero-till seed drill reduces tillage to *only* 1 pass (the normal practice: 8-11 passes). This allows more timely sowing, which raises yields and lowers costs by saving soil, fuel, tractor costs, water, and fertilizer.

In Pakistan: Used on more than 1,200 hectares at 304 sites.
In India: Used on more than 1,000 hectares in Haryana, where yields improved and production costs fell by US$ 60/ha; a modified version is being used in Punjab.

The Chinese Hand Tractor

The two-wheel tractor, an innovation used widely in China, is being adapted for South Asia with an array of implements including pumps, threshers, reapers, winnowing fans, and trailers. One set of implements tills and sows in a single pass, conserving soil and reducing drudgery. The system is particularly relevant for small-scale farmers who cannot afford to maintain bullocks.

Farmer testing in Nepal and eastern India
In Bangladesh:

- 70% of all wheat cropping is done using via minimum tillage; agriculture is 80% mechanized (up from virtually 0% in 1991).
- Timely sowing contributed to recent bumper crops of wheat; 1998 wheat production was 2 million tons—nearly double that of 1994.

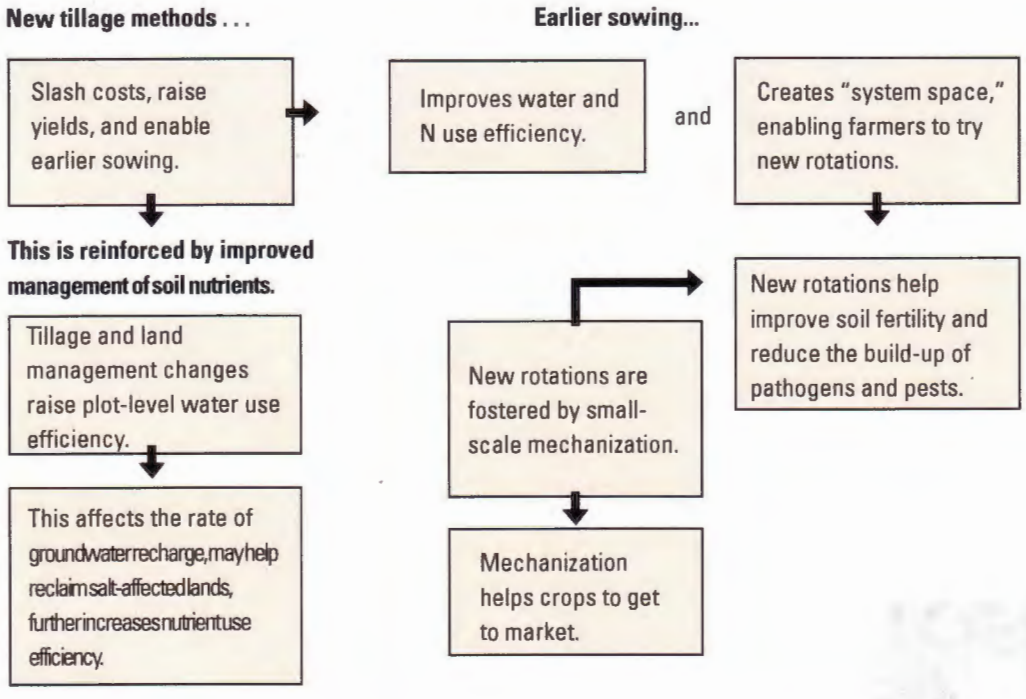
Surface Seeding of Wheat

Wheat seed is tossed directly onto the soil amid rice plants prior to harvest. The method is designed especially for farmers who lack machinery and where soils are heavy and waterlogged.

There has been testing and moderate adoption in Nepal, eastern India, Bangladesh.
At test sites in Nepal, surface seeding made the difference between yields of 4 tons per hectare of wheat and nothing at all, because farmers could plant on heavily saturated soils.

South Asia's rice-wheat area

An example of how improved practices developed and delivered by the Consortium interact and help farmers.



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