DISPATCHES

GREEN REVOLUTION II
At a FieldFresh farm in Ludhiana, workers harvest carrots for export.

Field of Greens

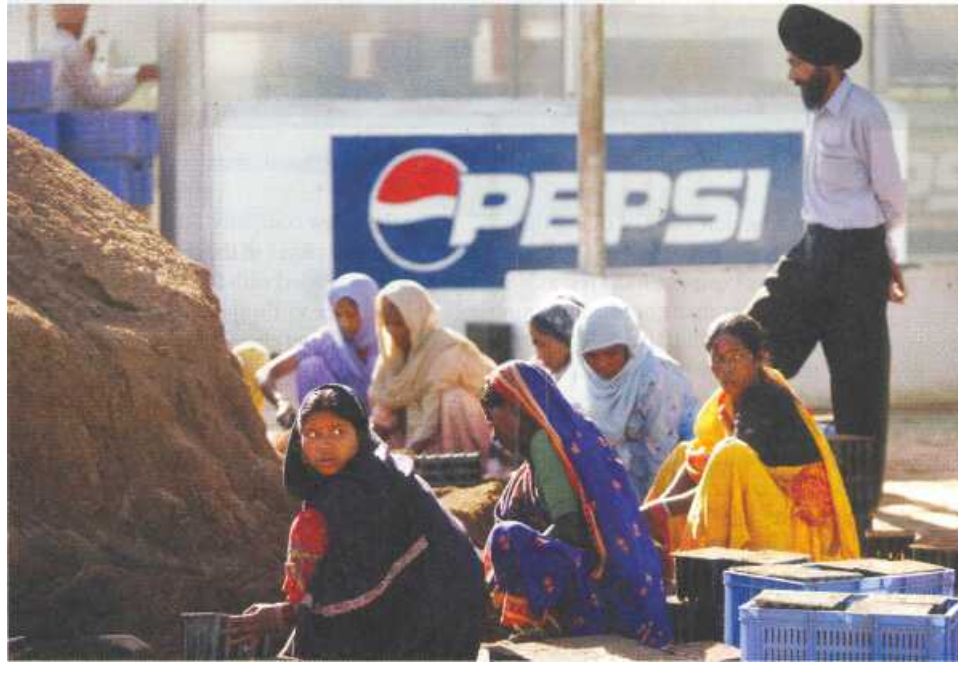
India is undergoing **a second agricultural revolution**—building the infrastructure that connects farm to supermarket. **BY JOHN ELLIOTT**

PHOTOGRAPHS BY DILIP MEHTA

EMAAN SINGH MANN is a happy farmer, a rare commodity in India's northern state of Punjab, where overfarming and a falling water table have affected productivity on the broad plains that gave rise to India's Green Revolution of the 1960s. He's happy because FieldFresh, a new company that plans to become India's first large-scale exporter of produce, has leased 90 acres of his land to grow vegetables that need less water than the wheat, rice, and sugarcane he used to cultivate. FieldFresh will pay him slightly more than the $30,000 a year he was getting, and it hires his tractors as well as pays his workers. "I might have got out of agriculture," says Mann, 35, who is the son of a prominent local politician and who opened a computer-assisted-design school in nearby Chandigarh 18 months ago as a hedge. Now okra and chilies grown on Mann's land go to a warehouse for cooling, then travel 200 kilometers by road in a refrigerated truck to Amritsar, where they're put on a flight to Britain.

That may not seem a big deal, but for India it is a second Green Revolution, which could become as important as the first. Until recently, like tens of millions of other farmers, Mann had been forced by law to sell his produce at *mandis,* a network of local markets originally introduced to protect poor farmers from exploitation but now controlled by cartels of traders, bureaucrats, and moneylenders. He would be paid the official minimum price or less for his produce, but no one would tell him what vegetable varieties sold well or show any interest in improving quality. The produce would then be sent via other middlemen on a slow and often hot journey to retail customers. En route, according to estimates by agriculture expert Abhijit Sen, a member of India's planning commission, between 30% and 40% of it would rot before it got to market. With few refrigerated packing centers, no regional distribution network, and an inefficient fleet of trucks, India can't sustain large-scale vegetable production, let alone an export business.

Now market pressure—the potential for export and a rapidly growing domestic demand for reliable produce from new supermarket chains—is driving change. "Organized supermarkets have to have an organized back end," says Lynn Forester de Rothschild, founder and CEO of E.L. Rothschild, a British investment firm owned by a branch of the Rothschild banking family. E.L. Rothschild is a fifty-fifty investor in FieldFresh with Bharti Enterprises, one of India's two biggest telecom operators, which is planning to set up a nationwide retail chain, probably with Britain's Tesco, as well as an export business. "There is a compelling case for India to feed the world, using inherent strengths that haven't been exploited at all," says Bharti chairman Sunil Mittal.



AGRIBUSINESS Greenhouses run by FieldFresh (top) and PepsiCo are improving output.

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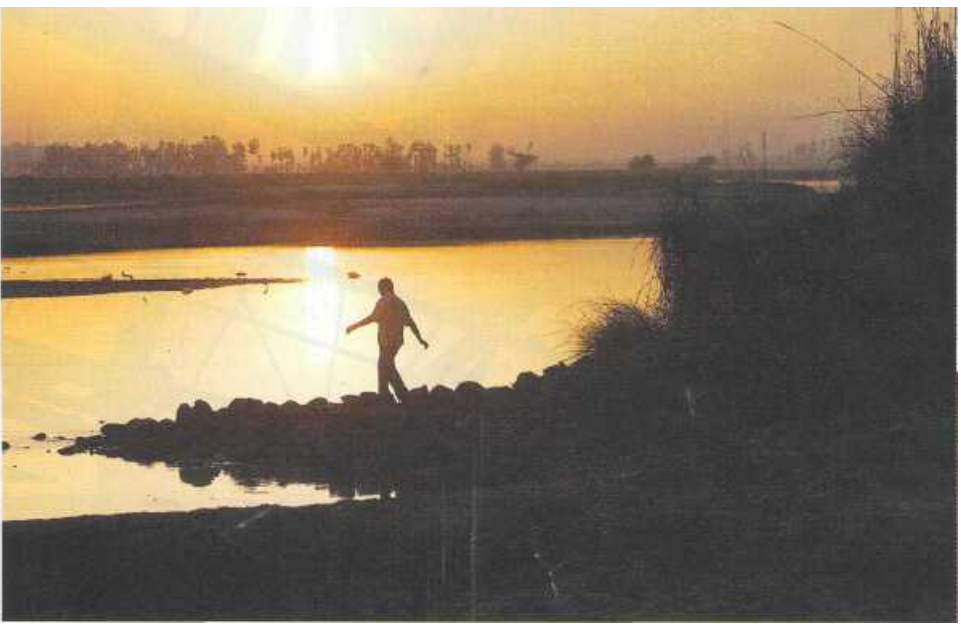
FieldFresh leases 4,200 acres on 78 farms in Punjab, producing beans, snow peas, carrots, okra, baby corn, and other vegetables for export to Europe and the Middle East. In other parts of India it is buying produce on contract from farmers, guaranteeing to pay market prices, though farmers are free to sell elsewhere. This contract system will probably become FieldFresh's main business model once farmers have learned to produce consistently high-quality crops using new seeds, fertilizers, and techniques the company provides. The benefits are already visible: "It has had an astounding impact on my village," says Mann, "with more employment and higher family earnings alleviating a lot of social problems—and



A RIVER RUNS THROUGH IT A FieldFresh farmer takes a break at day's end.

I'm learning new ways of doing things."

With low wages of $l to $3 a day in a labor-intensive business, India has a clear cost advantage over many producing countries. But FieldFresh's initial export attempts last year proved disastrous. Fifteen out of 20 containers of grapes, as well as shipments of mushrooms and okra, were wasted because of poor-quality skins, pest attacks, or airport delays. "It was a learning phase," says Mittal, who has persuaded the government to set up India's first perishable-produce centers at airports in Delhi and Amritsar and to relax lengthy and often corrupt customs procedures. But even though Tesco is among FieldFresh's overseas buyers, it has not been easy breaking into foreign markets. FieldFresh expects its exports this year to grow to $15 million, after an initial investment of $50 million.

CROP FAILURES AND BANKRUPTCY HAVE LED TO AN AVERAGE OF 15,000 FARMER SUICIDES ANNUALLY IN RECENT YEARS.

Reliance, one of India's two largest industrial groups, has even bigger plans. In June its chairman, Mukesh Ambani, announced a $5.6 billion multiyear investment in agriculture and retail. He aims to make a new company, Reliance Retail, the dominant player in the sector. Links are being established with farms on several thousand acres in Punjab, West Bengal, Maharashtra, and elsewhere, with rural centers providing goods for farmers and handling their produce. Supply chains are planned from these hubs to Reliance Retail's outlets, as well as to foreign buyers. Ambani says he wants to deliver "better returns for the Indian farmer and producer by connecting them directly to Indian and global consumers, and lower prices and better product quality for consumers." He is already growing mangoes on land adjacent to Reliance's oil refinery at Jamnagar and plans to become India's biggest mango exporter, selling 3,600 tons annually within five years

With 77% of India's population relying on agriculture for a living, improvements in efficiency and new markets have the potential to benefit large numbers of people. The initiatives by Bharti, Reliance, and other companies will undoubtedly bring advantages of scale that have largely been missing in a nation where the average land holding is only 2'/2 acres and 60% of agricultural output is consumed by farmers' families. But anything that might result in consolidation or in the displacement of farmers from their land is politically sensitive—especially at a time when crop failures and bankruptcy have led to an average of 15,000 farmer suicides annually over the past five years, according to official records. Even Mann's father, Simranjit Singh Mann, who heads a Sikh political party in Punjab, has found it politically expedient to attack the state government for providing low-priced agricultural land to Reliance for a rural farming center.

India's Agriculture Secretary, Radha Singh, is backing the big companies' entry into vegetables and fruits because of the obvious growth potential and the impact they can have on farmers' performance. She is also encouraging states to relax the *mandis'* monopoly and improve infrastructure. "Until recently," Singh says, "the government has never looked at linkages beyond basic food production because the focus has been on self-sufficiency."

One big company that has already had a positive impact on Indian agriculture is PepsiCo. The American company has been working with farmers in Punjab since the 1980s, initially pulping tomatoes in return for obtaining government permission to produce and sell its drinks in India. Pepsi introduced new varieties that have helped boost the state's tomato crop from 18,000 tons in 1988 to 300,000 tons this year. Although no longer involved with tomatoes, Pepsi has a five-year program with the Punjab government to provide several hundred farmers with four million sweet-orange trees for its Tropicana juices by 2008. It is also developing a seaweed crop for a food-gelling agent on 4,000 rafts off the southern Indian coast. And it has introduced Punjab farmers to high-yielding varieties of other crops, such as basmati rice, mangoes, potatoes, chilies, peanuts, and barley, which it uses for its Frito-Lay snacks or sells to domestic and foreign buyers. Last year its agriculture exports totaled $40 million. "This started off as a government obligation," says Abhiram Seth, Pepsi's exports director, "then became corporate social responsibility, and is now a business." F

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