

and DUSEL-related science projects at different universities. As a result, he told panel members, “the amount left for the project office to do the planning does not allow for a viable project.”

The death of DUSEL, or a serious delay, would have effects that would ripple across the scientific community, says Milind Diwan, a physicist at Brookhaven National Laboratory in Upton, New York. The blow would fall particularly hard on particle physicists at Fermi National Accelerator Laboratory (Fermilab) in Batavia, Illinois, which hopes in 2018 to begin shooting a beam of particles called neutrinos through Earth to an enormous particle detector hunkered deep within DUSEL.

Researchers at Fermilab currently shoot a neutrino beam to a detector in the Soudan mine in Minnesota. But the next generation of experiments requires a much longer baseline to accentuate the effects physicists hope to see. The distance from Fermilab to Homestake is twice that to Soudan, and Homestake is also twice as deep, which means that background radiation would be extremely low. “If we didn’t open DUSEL, we would be in trouble,” says Pier Oddone, director of Fermilab.

However, Oddone is optimistic that NSF will remedy the problem before work grinds to a halt. “From what I understand, people in the administration are working very hard to fix this,” he says.

—ADRIAN CHO AND LAUREN SCHENKMAN

perilously close to a tipping point.”

A graduate of the Indian Institute of Technology, Chennai, Suresh received his doctoral degree from MIT in 1981 and taught at Brown University before joining the MIT faculty in 1991. He was chair of the department of materials science and engineering before becoming dean of engineering, the largest of MIT’s five schools, in 2007.

The choice of an active researcher would be a departure from the norm at NSF, which has traditionally been led by senior administrators whose days in the laboratory are mostly a memory. That trait is believed to have put him at the top of the list of candidates to succeed the 77-year-old Bement, who is stepping down on 1 June to lead a new global policy research institute at Purdue University, where he has been on leave.

Suresh’s colleague, Science Dean Marc Kastner, says that his departure “would leave a tremendous hole for MIT to fill. But the scientific community would be lucky to have him at NSF.”

—JEFFREY MERVIS

INDIA

Hardy Cotton-Munching Pests Are Latest Blow to GM Crops

NEW DELHI—Monsanto has revealed that a common insect pest has developed resistance to its flagship genetically modified (GM) product in India. The agricultural biotechnology leader says it “detected unusual survival” of pink bollworms that fed on cotton containing the *CryIAC* gene from the bacterium *Bacillus thuringiensis* (Bt), which codes for a protein that’s toxic to many insect pests. In a statement to *Science*, Monsanto claims that the finding from western India “is the first case of field-relevant resistance to *CryIAC* products, anywhere in the world.”

The announcement hands GM critics a new cudgel. It “certainly results in the anti-GM lobby having extra ammunition,” says Fred Gould, an entomologist at North Carolina State University in Raleigh. “This should be an eye opener,” says Pushpa M. Bhargava, former director of the Centre for Cellular and Molecular Biology in Hyderabad and an archopponent of GM crops who helped disallow the Indian government to prohibit commercial planting of GM eggplant (*Science*, 12 February, p. 767). “India should immediately put a 10-year moratorium on the use and cultivation of GM organisms.”

In a 5 March statement, Monsanto said that during field monitoring of the 2009 cotton crop in Gujarat state, its scientists collected “large numbers” of pink bollworms from Bollgard cotton, a first-generation GM hybrid expressing a single Bt protein. (Newer Bollgard II hybrids produce two Bt proteins.) Back in the lab, the insects were fed Bt toxins at normally lethal concentrations—and survived. The problem appears to be isolated, but Monsanto says it reported its findings “to key stakeholders so appropriate decisions can be made.” Some say the company aims to shift customers to the pricier Bollgard II.

India is the second-largest cotton producer after China. Farmers first sowed GM cotton in India in 2002, and by last year they were cultivating it on 8.3 million hectares, or 83% of the country’s total cotton crop, estimates the Central Institute for Cotton Research (CICR) in Nagpur. Even before the resistance revelation, Indian farmers were adopting Bollgard II cotton. According to Monsanto, more than 65% of

cotton farmers in Gujarat state chose Bollgard II in 2009, and bookings indicate that more than 90% are expected to plant it this year.

Experts agree with Monsanto’s statement that “resistance is natural and expected.” But some dispute Monsanto’s claim that this is the first report of *CryIAC* resistance. Bruce Tabashnik, an entomologist at the University of Arizona in Tucson, says that nonindustry scientists had earlier reported resistance to Bt crops in South Africa and the United States.

One prominent researcher questions whether the Gujarat bollworms truly are resistant. Monsanto’s conclusions and methodology are “flawed,” charges CICR Director Keshav Raj Kranthi, an entomologist. In 8 years of monitoring Bt cotton, he says, CICR has “not



Bitter harvest. Monsanto claims that in Gujarat, large numbers of pink bollworms supped on Bt cotton—and survived.

found any resistance.” Kranthi argues that Monsanto “should have analyzed tens of thousands of specimens before making this claim. ... It’s a mystery why Monsanto is trying to kill its own technology.” Monsanto disputes that charge; it says its resistance tests were “standard practice” but declined to elaborate on its methodology.

Assuming the phenomenon is real, it’s a wonder it took so long for substantial Bt resistance to evolve, some scientists say. “I hope that this episode will cut down on the belief ... that Bt has some magical immunity to resistance,” says Gould. If as a result regulatory agencies promote better rules for managing resistance for a range of pests and crops, he says, Monsanto’s findings “could be a blessing in disguise.”

—PALLAVA BAGLA