productivity of research (F. Press, "Needed: Coherent budgeting for science and technology," Policy Forum, 1 Dec., p. 1448). Economist Fritz Machlup pointed out in 1962 (*2*) that the productivity of research depends on allocations of resources that must include knowledge. This is the unique resource that controls what research will be done and how. In particular, knowledge of research done and under way saves the expense of repetition. Studies (*3*, *4*) have not only confirmed this idea, their observations have suggested that substantial portions (20 to more than 70%) of our research report work that is "trivial, duplicative, or wrong" (*3*) as a result of poor communications. Other studies, including reports published by the NAS in 1978 (*5*) and 1985 (*6*), have observed that the collection and evaluation of data is often duplicated at considerable cost for the same reason.

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Weed Management and Pear Russetting

A recent Random Samples item (26 Jan., p. 453) describing the involvement of indole-3-acetic-acid (IAA)–producing strains of epiphytic bacteria in pear russetting may have left some readers with misconceptions about *Erwinia herbicola* and pear russetting. Although *Erwinia* was described as "a genus of troublemakers," *E. herbicola* (now called *Pantoea agglomerans*) is a diverse species, including strains that live epiphytically on leaves or fruit and cause no adverse effects; indeed, some strains of *E. herbicola* are effective biological control agents that protect plants against important diseases. A small proportion of strains of *E. herbicola* living epiphytically on pear produce IAA and only IAA-producing strains cause russetting. Steven Lindow and his colleagues at the University of California, Berkeley, are evaluating various methods to decrease pear russetting, such as biological control with antagonists like *Pseudomonas fluorescens* that suppress populations of IAA-producing bacteria on developing pear fruit, and management of weeds that support large populations of IAA-producing bacteria. I described these methods to *Science* but they were trivialized in the unfortunate statement that "all farmers have to do is more weeding," attributed incorrectly to me. The methods developed by Lindow have promise for decreasing economic losses caused by pear russetting because they are based on an understanding of microbial and physiological factors that contribute to this complex problem.

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