Erwinia rubrifaciens, first described in 1967, causes deep bark canker of Persian walnuts in California. In recent years, the pathogen has been variously classified, including as a pathovar of *E. quercina*, or grouped with *E. nigrifluens*, *E. quercina*, and *E. salicis* as a variety of *E. amylovora*. Working with 75 strains of *Erwinia* and with other representative genera of the Enterobacteriaceae, H. R. Azad and C. I. Kado of the University of California, Davis, found evidence from two systems of numerical taxonomy and in DNA:DNA homology studies that *E. rubrifaciens* is a species in its own right. Strains of the bacterium formed a very tight, distinct subcluster with 94.5 and 98.3% intragroup similarity by the two numerical methods, respectively. Analyses of DNA homology data suggested that the strains of *E. rubrifaciens* possess almost identical genomes. Mean intergroup similarities indicated that *E. quercina*, *E. nigrifluens*, and *E. salicis* are more or less equally related to *E. rubrifaciens*. DNA homology was higher between *E. rubrifaciens* and *E. salicis* (a pathogen of willow) than between *E. rubrifaciens* and *E. nigrifluens* (both pathogens of English walnut). *E. amylovora* strains made up still another subcluster. The authors suggest that *E. rubrifaciens* strains, being invariant irrespective of their present distribution in California, may have come from a single source. (J. Gen. Microbiol. 120:117-129)

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The supply of photosynthate to roots can be reduced by any of several factors, including competition from floral and fruit development, prolonged shading, and destruction of photosynthetic tissues by pathogens. With a reduced photosynthate supply, the respiratory rate of root tissues decreases and less energy is available for metabolic work. N. L. Crapo and W. J. Ketellapper of the University of California, Davis, used tomato, barley, and wheat to determine the metabolic priorities of the root, ie, which of several energy-requiring processes in roots are affected most by reduced fuel supply. Root growth was severely limited under conditions of reduced photosynthate that did not affect either potassium uptake or total respiration per unit weight of root. Even greater restriction on photosynthesis in the tops halted root growth completely and caused a strong decrease in potassium uptake and a moderate decrease in total respiration. The authors conclude that a limited energy supply is used first to maintain existing root tissues and that production of new tissues (as measured by the mitotic quotient of the root tip) has low priority. (Am. J. Bot. 68:10-16)

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Specimens can be freeze-fractured under liquid nitrogen in preparation for scanning electron microscopy with an apparatus described by B. G. W. Lamberty and C. B. Ellis of London Hospital, England. The apparatus was developed to permit examination of dermal collagen with minimum shrinkage and distortion of the specimen's internal structure. The method should have application to plants and microorganisms. (J. Microsc. 121:347-350)

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A method in which a fungal pathogen can be identified in tissue by specific ribosomal proteins separated by polyacrylamide gel electrophoresis is reported by M. R. Marshall and J. E. Partridge of the University of Nebraska, Lincoln. Working with *Fusarium moniliforme* in corn seedlings, the authors found that the ribosomal proteins of the plant differed significantly from those of the fungus. Electrophoresis of ribosomal proteins from field-grown corn stalks inoculated with *F. moniliforme* revealed bands characteristic of the fungus. Studies are now in progress to develop an even more sensitive assay by use of serologic techniques. (Physiol. Plant Pathol. 18:133-171)

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Fusarium wilt of cotton, caused by *F. oxysporum* f. sp. *vasinfectum*, has been the target of plant breeding efforts since the first resistant germ plasm was identified by W. A. Orton in 1900. However, resistant cultivars have lacked acceptable agronomic properties (notably high yield and fiber quality) compared with wilt-susceptible cultivars grown in the absence of pressure from wilt. A. J. Kappelman evaluated entries from breeders submitted from 1969 through 1978 and suggests that the problem of resistant cultivars being less acceptable agronomically has been overcome. Breeding stock and cultivars from 11 cooperators and submitted annually for the 10-yr period were grown in a field near Tallassee, AL, that was uniformly infested with both *Fusarium* and root-knot nematodes. A susceptible check ('Rowden') was planted every 10th row and a value for relative mean wilting (RMW) was calculated on the basis of wilt in the susceptible check; this value allowed adjustments for location and year effects. Progress was limited during the first 7 yr of the study, but RMW improved markedly during the last 3 yr. The author concludes that cultivars resistant to Fusarium wilt but with desirable yield and fiber properties have now been developed. (Crop Sci. 20:613-615)

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Inoculation of seeds with *Azospirillum brasilense* in a peat carrier (pH 6.8 and containing 10^8–10^9 cfu/g) resulted in yield increases of sweet corn, forage corn (three cultivars of *Zea mays*), sorghum, *Panicum miliaceum*, and *Setaria italica*, report Y. Kapulnik and associates of Hebrew University, Jerusalem. These investigators produced earlier evidence of potential substitution of *A. brasilense* for nitrogen fertilizer in greenhouse and growth-chamber studies. *Azospirillum* inoculation studies were conducted in field plots 20–90 m^2 and produced highly significant vegetative increases in sweet corn, sorghum, forage maize, *Setaria* maize, and panicum. Also increased were ears or panicles per plant or seed weight for sweet corn, sorghum, maize, and panicum. Acetylene reduction tests suggested nitrogen was fixed by the microorganism. Some studies were conducted with different rates of nitrogen fertilizer as a second variable; yields obtained with *Azospirillum* inoculum combined with low or medium nitrogen fertilization were generally as good as those obtained with high nitrogen without *Azospirillum*. Yields of sweet corn with inoculum and medium nitrogen fertilization were actually higher than those in fully fertilized uninoculated plots. The authors conclude that responses to the inoculum are sufficient to provide a profit for farmers. (Exp. Agric. 17:179-187)

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