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First Report of Soybean Rust Caused by *Phakopsora pachyrhizi* on *Phaseolus* spp. in the United States. T. N. Lynch, Department of Crop Science, University of Illinois, Urbana; J. J. Marois, Department of Plant Pathology, North Florida Research and Education Center, University of Florida, Quincy; D. L. Wright, Department of Agronomy, North Florida Research and Education Center, University of Florida, Quincy; P. F. Harmon, Department of Plant Pathology, University of Florida, Gainesville; C. L. Harmon, Southern Plant Diagnostic Network and Department of Plant Pathology, University of Florida, Gainesville; and M. R. Miles, USDA-ARS, Urbana, IL; and G. L. Hartman, USDA-ARS and Department of Crop Sciences, University of Illinois, Urbana. *Plant Dis.* 90:970, 2006; published on-line as DOI: 10.1094/PD-90-0970C. Accepted for publication 4 April 2006.

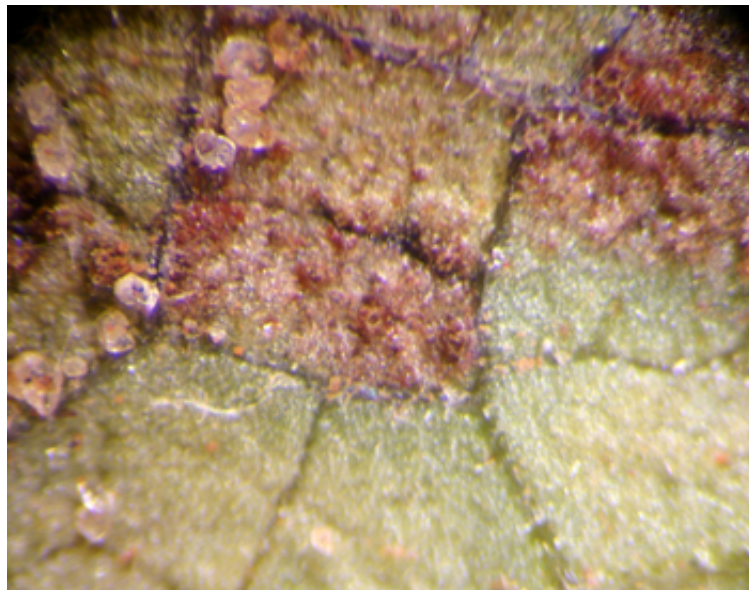
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Phakopsora pachyrhizi Syd. & P. Syd., the cause of soybean rust, was first observed in the continental United States in November 2004 (2). During the growing season of 2005, *P. pachyrhizi* was confirmed on soybean (*Glycine max*) and/or kudzu (*Pueraria montana*) in nine states in the southern United States. It is known that *P. pachyrhizi* has a much larger host range within the Fabaceae family. On 29 September 2005 in Quincy, FL, 45 entries of mostly large-seeded legumes were planted next to soybeans that were infected with *P. pachyrhizi*. Several seeds of each entry were planted on one hill. Soybean plants growing adjacent to these potential hosts had 15 to 25% of the leaf area affected, 95% incidence, and 73% defoliation on 16 November. On 7 December 2005, all the plants of *Phaseolus coccineus* L. (scarlet runner bean, PI311827), *Phaseolus lunatus* L. (lima bean, PI583558), and two *Phaseolus vulgaris* L. (kidney bean) cvs. Red Hawk and California Early Light Red Kidney (CELRK) were found to have leaves with suspected rust lesions. These plants were at physiological maturity but had not senesced. None of the hosts had been inoculated other than from spores produced by the adjacent rust-infected soybean plants or from unknown locations. On the basis of microscopic examination, suspected infected leaves from plants of the *Phaseolus* spp. had rust pustules characteristic of *P. pachyrhizi* uredinia. Uredinia were counted within a randomly selected 2-cm² area of one leaf of each sample. The mean and range of uredinia per lesion for *Phaseolus coccineus* was 29 uredinia with a range of 0 to 3 uredinia per lesion, *Phaseolus lunatus* had 2 uredinia with 0 to 1 uredinium per lesion, *Phaseolus vulgaris* cv. Red Hawk had 22 uredinia with 0 to 5 uredinia per lesion, and *Phaseolus vulgaris* cv. CELRK had 43 uredinia with 0 to 4 uredinia per lesion. Polymerase chain reactions using two sets of primers (Ppa1/Ppa2 and Pme1/Pme2) were performed on DNA extracted from leaves of the three species with sporulating rust pustules (1). The results of these tests and further tests conducted by the USDA/APHIS confirmed that *P. pachyrhizi* was the causal organism for the observed rust.

References: (1) P. F. Harmon et al. On-line publication. doi:10.1094/PHP-2005-0613-01-RS. *Plant Health Progress*, 2005. (2) R. W. Schneider et al. *Plant Dis.* 89:774, 2005.



Lesions caused by *Phakopsora pachyrhizi* on *Phaseolus vulgaris* cv. California Early Light Red Kidney.



Lesions caused by *Phakopsora pachyrhizi* on *Phaseolus vulgaris* cv. California Early Light Red Kidney.
This close up shows erumpent pustules.

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