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Sudden death syndrome of soybean in Argentina

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Sudden death syndrome (SDS) is one of the most common and widely spread root disease affecting soybean [*Glycine max* (L.) Merr.] in Argentina where it is an economically important crop. This disease was first discovered in this country in 1992 in the Pampas Region, and the following year in Northwest Argentina. The etiological agent in both studies was reported as *Fusarium solani* f. sp. *glycines*. It was not until 2003 that Koch's postulates were first completed employing Argentine SDS strains. Molecular phylogenetic analysis of isolates recovered during pathogen surveys revealed that soybean SDS in Argentina was caused by at least four *Fusarium* species: *F. tucumaniae*, *F. virguliforme*, *F. brasiliense*, and *F. crassistipitatum*. *Fusarium tucumaniae* is the dominant SDS pathogen in Argentina followed by *F. virguliforme*. These surveys showed that both species were present in the main soybean-producing areas (Buenos Aires, Córdoba, Santa Fe) and in Entre Ríos Province. Only a few isolates of the other two SDS pathogens have been discovered in Argentina. To date, only *F. tucumaniae* has been shown to possess a sexual cycle in nature and via laboratory crosses. Losses attributed to this disease were estimated to range from 4 to 59% in 2011. Experiments conducted over the past five years to reduce disease incidence involved evaluation of soybean cultivars, manipulating soil properties, biological parameters and testing seed treatments. Metabolomic technology has also been investigated as a means of phenotyping resistance to *F. tucumaniae*. Although published studies have reported variable results, use of moderately resistant cultivars has proven to be the most effective means for managing soybean SDS.