

Aspects of Vesicular-Arbuscular Mycorrhizae in Plant Disease Research

Stan Nemeč

U.S. Department of Agriculture, ARS, Orlando, FL 32803.

During the past decade, discoveries by scientists doing research on vesicular-arbuscular (VA) fungi have generated an "explosion" of interest. Now that VA mycorrhizae are known to be nearly ubiquitous on most higher plants and significantly beneficial to their nutrition, a wider variety of research on them is being done by workers in many disciplines of the basic and applied sciences. Studies are wide ranging, but there is particular emphasis on nutrient uptake, host growth responses, host-pathogen-symbiont interactions, and, lately, on commercial applications designed to conserve crop plant mineral nutrient resources.

Statistics prepared for me by the National Agricultural Library graphically illustrate the rate of development in this field. At the First North American Conference on Mycorrhizae in 1969, 26

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invited or contributed papers were presented. Twelve years later at the Fifth Conference in 1981, this participation had increased 10-fold; a combined total of 263 abstracts and papers were presented. In 1970, two abstracting services, AGRICOLA and CAB, listed 17 and six papers, respectively, on mycorrhizal research. By 1979, AGRICOLA had 96 listings, CAB had 314, and BIOSIS 174. Obviously, some of the latter were duplications. From late 1978 through 1980, 99 journals published papers on VA mycorrhizae, 68 of these reported only one paper. The New Phytologist had 34, Canadian Journal of Botany had 15, and Plant and Soil had 12.

In recent years, there has been considerable interest in the interaction between the mycorrhizal host and pathogens attacking it. The vital interplay between a bipartite VA mycorrhiza system naturally present in the field and plant pathogens deserves attention by plant pathologists in all areas of the profession. In this symposium, five highly qualified researchers will present current concepts of the importance of VA mycorrhizae in plant disease research.