

The Future of Nematology: Introduction¹

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This colloquium was developed to address the status and some of the opportunities and challenges facing agricultural nematology in the 1990s. A secondary goal in these treatments was to compare the present situation in nematological education and research to that depicted in a similar colloquium in 1979 (5). In the lead article for that program, Van Gundy (5) expressed a number of concerns about the vitality of nematology and suggested that phytonematology, particularly, had plateaued or was even shrinking. This trend toward reduction of size and number of programs is evident at several institutions today and haunts most agricultural sciences.

Graduate programs focusing on agricultural nematology have made many contributions during the last four decades. Much of the pioneering research on nematode genetics, ecology, systematics, general biology, disease etiology, and the development of improved management tactics is the result of graduate student projects. Graduate programs and related projects in agricultural nematology have been maintained or increased at some universities, including several in the United States.

Clearly, nematodes, especially plant-parasitic nematode–host systems, are attractive for teaching as well as applied and basic research. Nevertheless, major efforts are needed to enhance student and public awareness of nematodes. To meet future needs for research scientists, educational programs on nematodes should be expanded to include secondary, high school,

and biology students. A well-developed mix of experiments with plant- and insect-parasitic nematodes and *Caenorhabditis elegans* could be adapted for such programs. Carefully developed educational packages on nematodes could complement the “fast plant” materials developed by Paul Williams (6), especially for secondary and high schools. Species of nematodes that undergo diapause or cryptobiosis should offer much for this purpose. These educational activities would have multiple benefits, including enhanced communication with the public and graduate student recruitment. The following article by Eisenback (1) on the potential of interactive multimedia as a teaching tool offers an innovation in the use of supplemental teaching techniques for the traditional classroom and possibly for other purposes.

Research in agricultural nematology has provided much basic understanding of crop- and insect-nematode systems and how to manage these parasites. With the continuing loss of some of the highly effective pesticides, new challenges and opportunities are surfacing. Included in the following papers are new directions for research on nematode ecology and integration of new and improved management strategies and tactics, as described by Ferris (2) and Roberts (4), respectively. For similar treatments on advances and opportunities for the physiology and molecular biology, the reader is referred to Hussey (3) and Williamson et al. (7).

LITERATURE CITED

1. Eisenback, J. D. 1993. Interactive multimedia for teaching nematology. *Journal of Nematology* 25: 367–373.
2. Ferris, H. 1993. New directions in nematode ecology. *Journal of Nematology* 25:374–382.

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3. Hussey, R. S. 1989. Disease-inducing secretions of plant-parasitic nematodes. *Annual Review of Phytopathology* 27:123-141.

4. Roberts, P. A. 1983. The future of nematology: Integration of new and improved management tactics and strategies. *Journal of Nematology* 25:383-394.

5. Van Gundy, S. D. 1980. Nematology—Status and prospects: Let's take off our blinders and

broaden our horizons. *Journal of Nematology* 12: 158-163.

6. Williams, P. H. 1989. *Wisconsin fast plants manual*. Burlington, NC: Carolina Biological Supply Company.

7. Williamson, V. M., J.-Y. Ho, and H. M. Ma. 1992. Molecular transfer of nematode resistance genes. *Journal of Nematology* 24:234-241.