Xiphinema californicum: To Be or Not to Be?

We have read with interest the recent correspondence by Franco Lamberti and the reply by M. V. McKenry (Plant Disease 71:864, 1987) regarding the recognition and use, or nonuse, of Xiphinema americanum sensu stricto and X. californicum. Lamberti and Bleve-Zacheo (Nematol. Medit. 7:51-106, 1979). Whilst having considerable sympathy with both authors, we believe that the reply by Dr. McKenry raises several issues of importance to our science.

We do not accept fully all new species claimed by Lamberti and Bleve-Zacheo, but differences between X. americanum and X. californicum are readily apparent in the nematodes' morphology and biometrics. If such differences are not accepted as the basis for separating these two forms, what are we to suppose is the fate of the widespread (?) acceptance of the two forms X. americanum and X. rivesi? Differences between X. americanum and X. rivesi are much less than those apparent between X. americanum and X. californicum. Speciation in parthenogenetic groups such as X. americanum sensu lato is recognized as a problem, especially when based on only biometrical and small anatomical differences. Such differences may represent little more than extremes in an otherwise continuous variation, with other populations subsequently being identified as intermediate forms, thus connecting these two extremes. Electrophoretic techniques (especially two-dimensional) offer a means of determining the amount of genetic divergence between populations, and we suggest, offer a more objective basis for comparison between contentious "species."

Trudgill, Brown, and McNamara (Rev. Nematol. 6:133-141, 1983) listed procedures and criteria for assessing nematodes as virus-vector species. Correct identification of the nematode species being studied is a major requisite for such studies. However, the belief that serologically different viruses and strains of the same virus have exclusive specific vector nematode species is now recognized as requiring modification. Brown (Rev. Nematol. 9:83-87, 1986; Nematol. Medit. 13:217-223, 1985) has demonstrated differences in the efficiency and even the ability of populations of the same species, X. diversicaudatum, to transmit viruses. Differences in the ability of a population of Longidorus attenuatus to transmit serologically indistinguishable isolates of tomato black ring virus have also been demonstrated (Brown, Murant, and Trudgill, Rev. Nematol. In press). With such differences now recognized, it is unlikely that virus-vector studies, as suggested by Dr. McKenry, will shed light on the taxonomic relationship between X. americanum and X. californicum. Indeed, X. americanum and X. rivesi transmit tomato ringspot virus; are we to assume that on this biological evidence Dr. McKenry would synonymize these two species? Dr. McKenry acknowledges X. californicum, X. americanum sensu stricto, and X. pachtaicum as being present in his area. Other workers in California reported X. californicum as a vector of several strains of tomato ringspot virus (Hoy and Mircetich, Phytopathology 74:272-276, 1984; Hoy, Mircetich, and Lownsbury, Phytopathology 74:332-335, 1984). It is surprising, therefore, that Dr. McKenry apparently is unwilling to use his identification of X. californicum, which must be considered an "economically important species." It seems a matter of pedantry if the real argument is whether X. americanum sensu stricto or X. californicum is the dominant species in the San Joaquin valleys.

Finally, a minor correction is required, as X. pachtaicum (accepted correct spelling) has as a junior synonym X. mediterraneum (accepted correct spelling). However, authors may choose to use any spelling and indeed any name they wish, although they risk confusing or confounding the reader. To prevent this happening, surely it is the responsibility of journals' editorial boards and referees (peers!) to take the lead and attempt to standardize on acceptable nomenclature. The statement that published papers reflect the views only of the authors is an unuseful avoidance of necessary and expected scientific leadership. One result of such a statement might be the adoption by authors of the anarchic philosophy of language as set forth by Humpty-Dumpty (Lewis Carroll, Through the Looking Glass): "When I use a word it means just what I chose it to mean, - neither more nor less."

Derek J. F. Brown
David L. Trudgill
Zoology Department
Scottish Crop Research Institute
Invergowrie, Dundee, Scotland