

MASTER CLASSES IN NEMATODOLOGY, SOIL BIOLOGY AND SOIL HEALTH

Seven Master Classes and workshops will be offered in 2023 and they are described below.

Diagnosis of nematode problems in turfgrass

Date: Wednesday 12 April 2023

Location: Elizabeth Macarthur Agricultural Institute, Menangle, NSW

Content: This workshop will be for professionals who are diagnosing nematode and disease problems in turfgrass and would like to improve the diagnostic service they provide. The workshop will cover nematode extraction methods, identification of the main plant-parasitic nematodes that occur on turf, damage thresholds, factors that influence damage thresholds, control methods suitable for use on turfgrass, and biosecurity options to reduce the spread of southern sting nematode. However, its main focus will be to help attendees correctly identify the plant-parasitic nematodes that occur on turfgrass in NSW.

Instructor: Dr Graham Stirling, Plant and Soil Nematodes, Brisbane

Local contact: Dr Andrew Daly, NSW Department of Primary Industries. andrew.daly@dpi.nsw.gov.au

Enrolment: If you have some nematode identification skills or are providing a nematode diagnostic service and would like to attend the workshop, please contact Andrew Daly (see above) and list the main things you would like to learn at the workshop.

Plant-parasitic nematodes on turfgrass and their management

This workshop will be held at two locations.

- Elizabeth Macarthur Agricultural Institute, Menangle, NSW. Thursday 13 April 2023
- South Metropolitan TAFE, Murdoch Campus, WA. Monday 11 September 2023 (venue to be confirmed)

Content: This workshop is aimed at superintendents who manage golf courses, bowling greens, sports fields, racecourses, parklands, and other turfed venues. The main objective is to help superintendents understand the type of damage different plant parasites can do, how many nematodes are needed before symptoms can be seen, and what management practices can be used to keep the turf healthy. The major focus will be on southern sting nematode as it is a very damaging pest and is widespread in parts of NSW and WA. All those attending the class will have an opportunity to submit a sample from the turf they are managing, and the results will be discussed at the class.

Instructor: Dr Graham Stirling, Plant and Soil Nematodes, Brisbane

Local contact in Sydney: Dr Andrew Daly, NSW Department of Primary Industries. andrew.daly@dpi.nsw.gov.au

Local contact in Perth. Peter Ruscoe, Sports Turf Technology. peter@sportsturf.net.au

Enrolment: These workshops will be limited to 25 participants, as this will ensure that each person receives an appropriate level of attention during the discussion and laboratory sessions. If you would like to attend the Sydney workshop, please contact Andrew Daly (see above) and indicate the main venues you are responsible for managing. Enrolments will close on Friday 17 March, so if you are interested, please enrol as soon as possible.

Preparation of basic Nematology lectures and laboratory sessions for undergraduate students

Date: Monday 10 July 2023

Location: University of Melbourne, Parkville, Vic

Content: This class is for plant pathology lecturers and other university staff who would like to include some information on nematodes in the lectures and laboratory sessions they prepare for students. Attendees will be given access to photographs, diagrams, slides, presentations, and published material that could be used to prepare introductory lectures on topics such as the main plant-parasitic nematodes in Australia and the symptoms they produce; the integrated management practices available to reduce losses from nematodes; and the free-living nematodes that play a vital role in cycling nutrients and keeping soils healthy. However, most of the day will be spent discussing what could be included in laboratory sessions that would introduce students to the fascinating world of nematodes. Attendees will have the opportunity to see how students could extract various nematodes from soil or roots; be provided with samples containing Australia's most important plant-parasitic nematodes; given the opportunity to culture a fungal-feeding and bacterial-feeding nematode; shown how to identify nematodes to trophic group level; and observe some of the biocontrol agents that help suppress nematode populations.

Instructor: Dr Graham Stirling, Plant and Soil Nematodes, Brisbane

Local contact: Dr. Niloofar Vaghefi, University of Melbourne: vaghefin@unimelb.edu.au

Identification of plant-parasitic and free-living nematodes

This class will be held at three locations.

- University of Melbourne, Parkville, Vic. Tuesday 11 July and Wednesday 12 July 2023
- University of Sydney, Eveleigh, NSW. Tuesday 25 July and Wednesday 26 July
- University of Western Australia, Perth WA. Thursday 7 and Friday 8 September 2023

Content: The classes will be held in well-equipped university laboratories and attendees will be given the opportunity to focus on one or more of the following options. 1. Identify and count plant-parasitic nematodes in diagnostic samples from soil or roots; 2. Assess the soil nematode community by identifying nematodes to trophic level (plant parasite, plant associate, bacterivore, fungivore, omnivore, predator). 3. Identify selected nematodes to species level by preparing slides for morphological examination and hand-picking individual nematodes for molecular analysis. Those who choose the third option will be able to take the nematodes they have placed in Eppendorf tubes to their own laboratory and use a detailed PCR protocol prepared by Dr Neil Wilson (Metagen, Gatton) to identify them to species level using molecular methods.

Instructors: Dr Graham Stirling, Dr Marcelle Stirling, Dr Neil Wilson

Local contact for Melbourne class: Dr. Niloofar Vaghefi, University of Melbourne: vaghefin@unimelb.edu.au

Local contact for Sydney class: Dr Andrew Daly. NSW Dept. Primary Industries: andrew.daly@dpi.nsw.gov.au

Local contact for Perth class: Stefan Harasymow, DPIRD: stefan.harasymow@dpiird.wa.gov.au

Instructors

These classes have been organised by Dr Graham Stirling and Dr Marcelle Stirling, who established their own research and diagnostics company (Biological Crop Protection) in 1995. Graham has more than 50 years' experience as a nematologist/plant pathologist/soil biologist; has worked on most of the crops grown in Australia; has written more than 140 peer-reviewed research papers and numerous extension publications; has prepared two editions of *Biological Control of Plant-Parasitic Nematodes*; and co-authored *Soil health, Soil biology, Soilborne diseases and Sustainable agriculture, A guide*. Marcelle operated a nematode diagnostic service for 25 years and is one of the few people with the taxonomic skills needed to identify free-living nematodes. Dr Neil Wilson (Metagen, Gatton) will provide protocols and advice to attendees who would like to identify nematodes to species level using molecular methods.

Costs

There will be no fee for the classes. Graham and Marcelle Stirling are providing the classes as a philanthropic venture, in the hope that they will stimulate interest in an important group of soil organisms that have largely been ignored by the tertiary education sector in Australia.

Enrolments

Classes will be limited to 20 participants, as this will ensure that each person receives an appropriate level of attention during the discussion and laboratory sessions. If you would like to attend one of the above classes, please contact the local contact listed for each class, or Graham Stirling: graham.stirling@biolcrop.com.au