



Microbiotech Ltd is a research, development and consultancy company operating in the and bioconversion industries. Its two founding directors, Dr Ralph Noble and Andreja Dobrovin-Pennington both have over 30 years of research experience in applied microbiology and horticultural crop production and protection. Since 2011, their offices and laboratories have been based at Pershore College, Worcestershire, England.



Ralph and Andreja assessing mushroom colour using a spectrophotometer

Ralph has been an applied microbiologist with a specialist interest in the mushroom crop since 1984. He started his mushroom research career at the Lee Valley Ministry of Agriculture Experimental Horticulture Station, moving to Horticulture Research International (HRI) Littlehampton in 1989, where he obtained his BASIS Certificate in Crop Protection. He transferred to HRI Wellesbourne in 1994 where he later became the manager of the Mushroom and Bioconversion Unit. That year, Andreja joined the Mushroom Research Group at Wellesbourne. The Unit and their work were taken over by Warwick HRI, previously part of the University of Warwick until closure in 2011. Between then and 2018, they have worked for East Malling Research, more recently known as NIAB EMR. Ralph and Andreja have worked on a wide range of projects related to the mushroom crop including:

- control of fungal and bacterial diseases, compost moulds and fly pests
- sustainable compost, casing and supplement formulations
- cultivation and quality of button mushrooms and exotics
- automated irrigation and harvesting systems
- utilisation of spent substrate in crop production.

Microbiotech undertakes research into pest and disease control in other horticultural crops, particularly on control methods using reduced pesticides or biocontrol agents.



Ralph at a site he helped to design for controlled temperature composting of shredded tree wastes into a useful mulch, and preventing the spread of tree diseases

They have published more than 200 scientific papers, articles and reports on their research. Microbiotech Ltd provides a consultancy service for farm hygiene, mushroom disease control and substrate production. Ralph and Andreja have conducted mushroom research and consultancy projects in several European countries, China, USA, South Africa, Australia and New Zealand. Microbiotech Ltd has well equipped laboratories for conducting microbiological and chemical analyses of substrates, fungal and bacterial cultures and crop quality assessments. It has facilities for production of experimental scale cropping substrates and access to larger-scale mushroom growing and glasshouse facilities for cropping experiments.



Andreja with different types of traps for fruit flies

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