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## Aerobiology and agriculture

Inaugural Scientific Meeting of the British Aerobiology Federation 24 March 1993

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## Aerobiology and Agriculture

Inaugural Scientific Meeting of the British Aerobiology Federation  
24 March 1993

The British Aerobiology Federation was launched on 16 January 1991 to encourage research and study in the field of aerobiology, to provide liaison and support for all groups and individuals interested in aerobiology and to promote greater public awareness and knowledge of the science. It comprises representatives of universities and research institutes, the medical profession and local government and brings together those with research interests in plant pathology, occupational hygiene and allergy, including those who belonged to the National Hay Fever and Pollen Bureau and those who contribute data to the European Allergy Network database.

It was appropriate that this inaugural scientific meeting should be held at Rothamsted Experimental Station, since 1993 was the 150th anniversary of the start of experiments at Rothamsted, the 75th anniversary of the Plant Pathology Department and approximately 50 years since aerobiological research began in that Department. Philip Gregory published his seminal paper, *The dispersion of fungal spores*, in 1945 following studies of virus transmission by aphids during the war years which drew his attention to the importance of disease gradients. Jim Hirst first came to Rothamsted as a voluntary vacation student in 1948 and later became a member of staff in 1950, particularly to investigate the epidemiology of potato late blight (*Phytophthora infestans*). As most will be aware this led to the development of the automatic volumetric spore trap which has become a basic tool of allergists and plant pathologists alike. At Rothamsted, this spore trap continues to contribute greatly to studies of the epidemiology of plant diseases. John Stedman made important contributions to the research of both Philip Gregory and Jim Hirst and subsequently this research has been continued by Alex Bainbridge, Alastair McCartney, Maureen Lacey and Bruce Fitt. Before he retired, Philip Gregory's attentions were diverted from plant pathology to the study of mouldy hay in relation to farmer's lung disease. This resulted in further studies related to occupational hygiene and lung

disease by John Lacey and Brian Crook, with extensive multidisciplinary collaboration.

Agriculture is a topic which unites all aspects of aerobiology. Grassland is the source of the major pollen allergen in the United Kingdom while other crops may yield additional pollen allergens that may be locally common. Grassland and cereal crops are important sources of the fungal spores that often dominate, at least numerically, the air spora. Crops are also subject to the diseases that have been studied aerobiologically while stored crops are often implicated in respiratory diseases of man and animals caused by actinomycetes and fungi, of which farmer's lung is the classic example. Changes in agricultural cropping, whether induced by government policy and economic support or by climate change may thus be important in determining the numbers and types of airborne pollens and fungal spores in the air and their implications for allergy and plant disease.

The invited papers presented during the meeting described the changes in pollen abundance that have resulted from recent changes in agricultural cropping and reflect many of the current interests in agricultural aerobiology at Rothamsted. These were supplemented by posters presenting other work relevant to the topic from other parts of the country and we were pleased to welcome Professor Jacek Dutkiewicz, from the Institute of Agricultural Medicine, Lublin, Poland, to describe his work on bacteria and endotoxins in animal houses. The papers that follow include the majority of those presented at the meeting and show the wide implications of agricultural changes for pollen and spore abundance.

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