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**Positive Plant Microbial Interactions:
Their role in maintaining sustainable and
natural ecosystems**

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Brigg, N Lincolnshire, UK**

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INTRODUCTION

This is the fourth AAB conference on '*Positive plant microbial interactions*'. This conference provides an opportunity to discuss recent developments in the understanding of how microorganisms can interact positively with plants in agricultural and natural ecosystems such that ecosystem sustainability is maintained or enhanced. These interactions include: bacterial (via production of exopolysaccharides) and mycorrhizal (via hyphae enmeshing soil particles) stabilisation of soil aggregates and structure; rhizobacterial promotion of plant growth due to increased nutrient availability via, for example, associative nitrogen fixation, phosphorus solubilisation and production of siderophores and increased iron availability; rhizosphere and endophytic bacterial promotion of plant growth by influencing plant hormone balance; rhizosphere and endophytic bacterial promotion of plant abiotic (temperature, water, salt, heavy metal) stress tolerance; endophytic and symbiotic nitrogen fixation; mycorrhizal uptake of nutrients and water; rhizobacterial suppression of plant disease via, for example, competitive exclusion of rhizosphere pathogens, production of antibiotics and the induction of systemic resistance; associative fungal protection against plant parasitic nematodes; endophytic fungal protection against herbivore pests; associative microbial (bacteria, fungi and viruses) protection against insect pests and bacteriophage protection against disease.

Prof. Stephen Cummings
Convener, Applied Mycology &
Bacteriology Group

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