

**Wednesday, September 24, 2:45-3:15 p.m.**

*The arbuscular mycorrhizal symbiosis: An underground association*

Maria J. Harrison

Boyce Thompson Institute for Plant Research, Tower Road, Ithaca, NY 14850, USA  
mjh78@cornell.edu

In natural ecosystems, most vascular flowering plants live in symbiosis with arbuscular mycorrhizal (AM) fungi. These mutually beneficial associations develop in the roots, where the fungus colonizes the cortex to obtain carbon from the plant. In addition to inhabiting the root, the fungus establishes hyphal networks in the soil, via which phosphorus and other mineral nutrients are transferred to the root. Fossils indicate that the ability to form AM symbiosis occurred early in the plant lineage and was mostly retained during evolution, with the result that today it is formed by angiosperms, gymnosperms, pteridophytes and some bryophytes. Over 80% of the angiosperms form AM symbiosis and these associations have a huge impact on plant biodiversity and ecosystem functioning. The underlying mechanisms are not fully understood but the contribution of AM fungi to plant phosphorus nutrition is a major contributing factor.

Currently, we employ genetics and genomics approaches to dissect that molecular basis of development and regulation of AM symbiosis. Recent progress in this area will be discussed.