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## Fairy Ring Fungi: A Review

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### ABSTRACT

Soil fungi play a crucial role in determining soil biodiversity. With relevance to the fruiting patterns of mushrooms, "fairy rings" occupy a specific concern. Fairy rings are a unique type of fungal growth that spread out from an initial point of inoculation, forming colonies in an annular pattern. Fairy rings are formed by more than 50 species of soil-dwelling fungi, most of which belong to Basidiomycota. Basidiomycetous genera that form fairy rings include *Agaricus*, *Agrocybe*, *Amanita*, *Boletus*, *Bovista*, *Calvatia*, *Cantherellus*, *Chlorophyllum*, *Clitocybe*, *Cortinarius*, *Disciseda*, *Hygrophorus*, *Lactarius*, *Lycoperdon*, *Marasmius*, *Scleroderma*, and *Tricholoma*. This review discusses the fairy ring types, favorable edaphic conditions, and vegetation types favoring their growth. The soil ranges from gravels, which facilitate excellent drainage, to silts with seepage, and the climate ranges from subtropical to arid, providing suitable habitats for their growth. At varying depths below the surface, most of the mycelium was concentrated in a band 50–60 cm wide and 5–8 cm thick. Most *Marasmius oreades* rings have been observed with a less than 3% slope. In arid areas, *Agaricus argenteus*, *Disciseda candida* and *Calvatia* spp., form in median range elevation, while *Marasmius oreades* prefers higher elevations in mesic regions. Most of the time, the fairy ring fungi remain in vegetative growth mode, allowing mycelia to penetrate soil and spread laterally to break down organic debris and release nutrients. Most fairy ring forming fungi are saprotrophs while some are ectomycorrhizal. Fairy ring fungi have a significant impact on soil quality. However, they show some adverse impacts on the surrounding habitat and human endeavors, including reducing the aesthetic beauty of lawns and competition with co-occurring plants. This review synthesizes many studies on fairy rings and elucidates the current knowledge.

**Keywords:** *Agaricus*, Annular pattern, Basidiomycota, *Marasmius*, Soil-dwelling

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