



# Role of expanded clay and porous ceramic amendments on plant establishment in minespoils

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## Abstract

Greenhouse experiments were conducted to examine the impact of expanded clay (Turface) or porous ceramic (Isolite) amendments on germination, biomass production, plant Zn concentration, and Zn accumulation by *Festuca arundinacea* grown in mine tailings. Because previous studies have demonstrated that fertilization is essential for plant growth in these tailings, manure was also added to the tailings. Plant growth and germination were greatest if the expanded clay was added topically to the tailings. To a lesser extent, plant growth and germination was also stimulated by topical additions of porous ceramic. However, no benefit was observed if either amendment was mixed into the top 10 cm of the mine tailings. The concentration of Zn in *F. arundinacea* tissues was lowest if the expanded clay was added topically to the mine tailings. Roots growing in the layer of clay or ceramic amendment appeared to be smaller, finer, and more abundant than the large, coarse roots found throughout the tailings-manure mixture. These results suggest that topical application of an expanded clay or porous ceramic product will increase seed germination and improve plant establishment and growth in contaminated minespoils.