



Influence of Biostimulants and Water-Retaining Polymer Root Dips on Survival and Growth of Newly Transplanted Bare-Rooted Silver Birch and Rowan¹

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The following abstract relates findings from a short-term study in the United Kingdom:

The influence of five commercially available biostimulant products (Trade names; Generate, Resistim, Fulcrum CRV, Bioplex, Maxicrop) in combination with a water-retaining polymer applied to the root system of the silver birch (*Betula pendula* Roth.) and rowan (*Sorbus aucuparia* L.) during the winter period under field conditions was investigated. The short and long-term efficacy of biostimulants on growth was quantified by assessing root and shoot vigor and survival rates at week 8 and 20 post bud break. Improvements in tree vitality were also assessed by measurement of leaf photosynthetic rates, chlorophyll fluorescence emissions and chlorophyll content. Significant effects of species, biostimulant and concentration were found on the majority of the growth and tree vitality parameters measured. Only two of the biostimulants tested induced significant growth responses in both tree species. Regardless of species, applications of a water retaining polymer alone had no significant effect on tree survival rates or tree vitality. However, growth of birch was significantly reduced compared to controls indicating a detrimental effect of polymer application alone on this species. Results conclude that use of commercially available biostimulant product in combination with a water retaining polymer can be of use to reduce transplant losses and improve tree vitality and growth over a growing season in silver birch and rowan. Selection of an appropriate biostimulant(s), however, is important as effects on growth and vitality between species and concentration of biostimulant applied.

Indexed Word: Seaweed extracts, zinc complex, molasses, natural plant extracts, betaine, transplant shock, tree vitality, growth, transplant stress.

Species used in this study: rowan (*Sorbus aucuparia* L.); silver birch (*Betula pendula* Roth.).

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