Title: **Finite Differences and Integral Balance Methods Applied to Nutrient Uptake by Roots of Crops**

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The authors propose and analyze several moving boundary models applied to the problem of growing roots. Results obtained for ionic uptake by pine seedlings using dynamic boundary methods are compared to experimental results and well known results from a model based on fixed domains.

Fairly detailed description of both, the integral balance method and the method of front-fixing are given. In the former the governing equation is integrated over the spatial variable and then solved using Runge-Kutta, while a transformation that maps the domain to a unit interval and fixes it before discretization using finite differences is used in the latter. The relative merits of using implicit and explicit finite difference methods are compared.

Results indicate that the integral balance method perform better than the front-fixing method.