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## **Seedchaser: Tillage Model for Vertical Weed Seed Distribution.**

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Knowledge of the vertical distribution of surface residues, chemicals, or seeds following tillage operations is of paramount importance to a wide variety of soil research areas. This paper describes a 1-D empirical vertical soil tillage particle distribution model with 1 cm grid spacing. Prior models have only examined the impact of a limited list of implements and used coarser vertical spacings. Horizontal movement and its implication on vertical distribution were accounted for selected tillage implements where horizontal movement has been observed to be significant. The model predicts the vertical distribution of weed seeds following a user selectable sequence of tillage cycles. Results of this model are particularly suited for weed seedling emergence modeling. However, the model can be easily adapted to any surface broadcasted and/or incorporated agrochemical. The present model can handle up to 9 passes with user selected sequence of implements. This model consolidates the results from previous literature models along with new data on conservation tillage and planting implements into a prediction tool that would have applications both in weed science and other soil research areas. This model was developed in JAVA and is publicly available via the internet.

[Handout \(.pdf format, 1756.0 kb\)](#)

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