

SEEDCHASER: TILLAGE MODEL FOR VERTICAL WEED SEED DISTRIBUTION. Kurt Spokas, Frank Forcella, Dean Peterson, Dave Archer, and Don Reicosky, Soil Scientist, USDA-ARS, North Central Soil Conservation Research Lab, Morris, MN 56267.

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 presentation 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. 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 developed 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, as well as other soil research areas. This model was developed in JAVA and is publicly available via the internet.