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**Plowing of granular surface by a vertical blade** VACHITAR SINGH JUDGE, EMILIE DRESSAIRE, NYU Tandon School of Engineering, ALBAN SAURET, SVI (CNRS/Saint-Gobain) — The interaction of a blade with a layer of fluid is an important industrial problem involved in coating of substrates, removing of snow, plowing the fields for agriculture. Most experimental and theoretical work has focused on the drag and lift forces on plowing blade as it is dragged on a granular surface or studying the flow of the fluid while plowing. However the study of deformation of a granular surface by a vertical plow blade has received less attention, despite significant practical and fundamental implications. In this study, we investigate experimentally the behavior of a granular substrate as a vertical plow blade of finite width is translated at constant speed. The vertical blade directs the granular material outward and sand piles form on either sides. We characterize the dynamics of plowing by measuring and rationalizing the influence of the width of the vertical plow blade, the height of the plow blade, and the depth granular substrate.

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