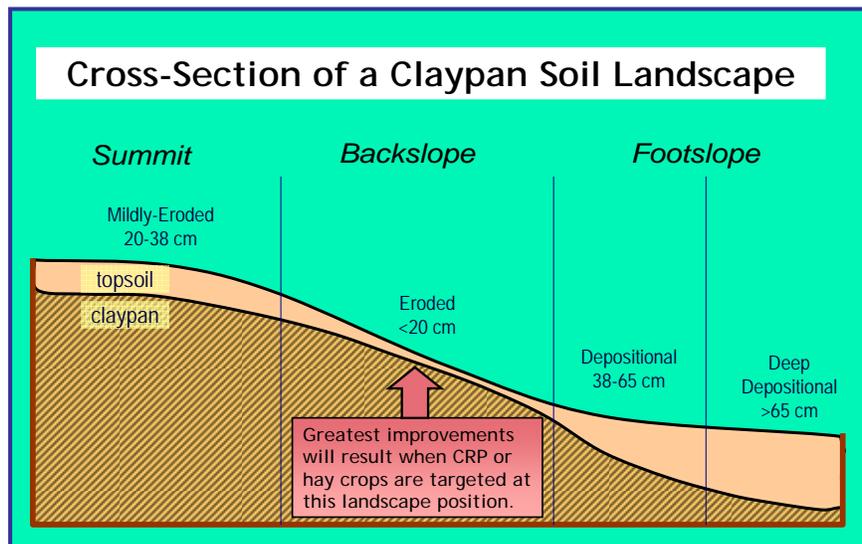


## Cropping System and Landscape Position Affect Soil Hydraulic Properties



Knowledge of the interactions between rainfall and the different soils found across a landscape and managed under contrasting cropping systems (with variables such as different rotations, different tillage practices, and grain crops vs. grass crops) is needed for understanding and modeling water movement in watersheds. We demonstrated that the depth of the claypan horizon in the soil profile was the main controlling factor for practically all sub-soil hydraulic properties. Cropping practices also affected soil hydraulic properties, but mostly in the top 4 inches of the soil and not equally at all landscape positions. *Most importantly, this research showed that the greatest improvements, resulting in increased infiltration*

*and decreased runoff and soil erosion, would be achieved on backslope positions managed in permanent grass (such as with the Conservation Reserve Program [CRP]) or hay crops.* The findings of this research show that landscape position and management practices interact, and both are important for characterizing hydraulic properties and developing targeted soil-water conservation practices. This understanding will benefit the general public because many watersheds in the U.S. Midwest empty into lakes and rivers used for drinking water and recreation and will benefit producers as new management systems are developed that embrace long-term crop sustainability goals.

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