

WALL TO WALL CARPET FOR CORN

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The St. Paul Soil & Water Management Unit has been developing and testing new strategies for corn and soybean production that will allow the removal of corn stover for energy production without increasing the risk of erosion, nutrient losses, and soil organic matter decline. One system uses helicopter seeding of winter rye into a standing corn crop several weeks before harvest. When the corn grain (and stover) are harvested, the young rye crop has already emerged, providing surface protection during winter and spring, as well as additional biomass for maintenance of organic matter. The second system features a permanent living mulch of kura clover, into which corn is planted. Kura clover is a remarkable plant that is similar to alfalfa in its ability to fix nitrogen and its palatability as a forage. Unlike alfalfa, it is long-lived and spreads by rhizomes, filling in gaps. As with winter rye, when corn grain and stover is harvested from a corn and clover companion crop system, a green surface cover remains, protecting the soil and providing additional biomass. As a bonus, since the clover provides nitrogen to the corn crop, less fertilizer is needed. There are important research questions remaining with both systems, but they show considerable promise as contributors to the emerging cellulosic biofuel industry.

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