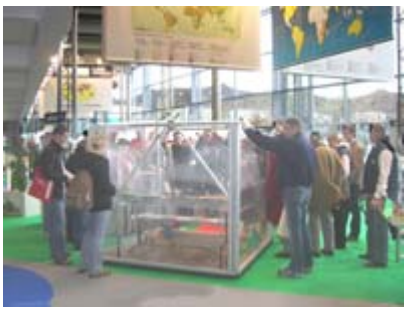
United States Department of Agriculture
NRCS Natural Resources Conservation Service

NRCS This Week
Your Report for Conservation on Private Lands

Kansas NRCS Rainfall Simulator Goes International

Clyde Mermis (NRCS photo -- click to enlarge)

small portable rainfall simulator first built in Kansas by district conservationist Clyde Mermis and the Lawrence Field Office NRCS staff (NRCS photo -- click to enlarge)



rainfall simulator at the Agritechnica 2007 in Hanover, Germany (NRCS photo -- click to enlarge)

For over ten years, the Douglas County, Kansas Conservation District has used a small portable rainfall simulator first built by district conservationist Clyde Mermis and the Lawrence, Kansas Field Office NRCS staff as a demonstration tool to show crop producers the value of crop residue management to protect cropland from wind and water erosion. Although the simulator generated hundreds of phone calls and e-mails from people all over the world who wanted information about the simulator and how they can build their own unit, the device just recently went international. In response to a query by York Bayer — a soil fertility consultant in Berlin, Germany — the rainfall simulator was shipped to Hanover, Germany, for the Agritechnica 2007. The Douglas County-built rainfall simulator was one of the featured attractions at the November 2007 world soil and tillage show that attracted over 340,000 farmers and agriculture experts from Europe and around the world.

The Douglas County simulator not only captured the interest of German farmers but also show-goers in Myrtle Beach, South Carolina; Fort Worth, Texas; Spokane, Washington; and St Louis, Missouri. For several years the simulator was viewed by hundreds of farmers at the annual No-Till on the Plains Conference held each January at Salina, Kansas.

The rainfall simulator that has attracted so much national and international attention was built in 1997 at a cost of $800 and was designed to let spectators view water erosion as it occurs during rainstorm. The portable simulator shows erosion from a 20-30 minute, three-inch rainstorm with four soil trays placed below the oscillating raindrop nozzle with different levels of crop residue (from 0 to 100 percent ground cover) placed on the soil surface. The quantity and quality of runoff from the soil trays is captured in clear gallon jugs placed below each tray. The simulator helps demonstrate that the protective benefits of crop residue are in direct proportion to the level of residue covering the soil surface — the more residue the less soil loss.

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