Can Graded Furrows Outperform Terraces?

Graded furrow systems outperform terraced systems. Clarence W. Richardson, agricultural engineer at the ARS Blackland Research Center, Temple, Tex. found this to be true in research comparing runoff, soil loss, and farm tillage efficiencies. His studies were conducted on field-size plots comparing a graded furrow system and a comparable area utilizing a standard terrace system.

With the introduction of mechanized farming methods, terracing, the traditional technique for controlling soil erosion, has been found unsatifactory due to the difficulty of employing present-day farm equipment to work these fields.

Richardson's project was based on a 3-year crop rotation of cotton, grain sorghum, and oats. The graded furrow system was constructed on an 11-acre site near Riesel, Texas.

Each furrow was designed to carry only the runoff that originated on the furrow iteself, therefore runoff from outside sources would overtax the furrow capacity and overtop the ridge of the furrow. For this reason diversion channels were constructed above the top furrow of the field to convey the runoff from the ungraded area above the graded furrow field to a separate waterway.

During the test period there were 28 runoff-producing storms. The average annual rainfall during the project was 32.76 inches.

Runoff from the terraced watershed (TW) generally exceeded that from the graded furrow watershed (GFW) during most storms. Reduced runoff on the GFW was probably due to more unifrom distribution of excess water on the GFW than on the TW, where the excess water was concentrated in the terrace channels.

Although erosion was minor on both watersheds, it was generally greater in the GFW than the TW, except during small runoff-producing storms. During the 3-yeard period the GFW averaged 1.38 tons of soil erosion per acre, whereas the TW averaged 1.09 tons per acre.

The design of the graded furrow system was put to a severe test during an intense storm when a total of 4.42 inches of rain fell, with 1.06 inches falling within 20 minutes. This storm caused extensive inter-terrace erosion and sediment deposition in terrace channels. The graded furrow system, however, conveyed runoff rainwater into the drainage waterway without over-topping the ridges or causing serious erosion problems.

On the average, the GFW tillage rate was 21 percent faster than the TW. Only the 1969 seedbed preparation and cotton harvest tasks were accomplished more quickly in the terraced area. This was due partially to additional initial bed preparation and poorly adapted machinery in the graded furrow area.

Fewer turns on the long parallel rows in the GFW area, as compared to the many point rows in the TW area, resulted in faster tillage of the fields. Also, the time-consuming tasks of maintaining terrace channels and ridges were eliminated with the graded furrow system.

Frey Holstein Has Outstanding Record

Another official production record exceeding a half ton of butterfat has been completed by Fultonway Crisscross Regina 6334755 (VG), a Registered Holstein cow owned by J. Mowery Frey & Son, Lancaster. This is the third time that "Regina" has achieved the 1,000 lb. butterfat production level in a single lactation. This record ranks among 4,300 similarly completed by Registered Holstein cows on official test.

The Pennsylvania Holstein's official record of production totalled 20,374 lbs. of milk and 1,030 lbs. of butterfat in 365 days. She started her lactation at the age of 7 years 11 months and was milked two times daily.

Fultonway Crisscross Regina was bred in the Frey herd. She was sired by Gray View Crisscross 1378594 (EK), a bull that has earned Gold Metal Sire recognition.

Pennsylvania State University supervised the weighing and sample testing of her production in cooperation with the Dairy Herd Improvement Registry program of the Holstein-Friesian Association of America.