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Sheet erosion on an almost level field



The same field protected by contour strip-cropping

of the middle West. Half of the State's farm land has already lost from one-fourth to three-fourths of this very slender cover.

Land stripped of its natural vegetative covering is left exposed to the destructive force of wind and water. As the downpour of rain cannot be absorbed immediately by the unprotected soil, a large volume of water runs over the surface and down the slope of the land. Gathering speed as it moves downhill, the mass of water carries away an ever larger volume of soil. The fine, powdery soil particles mix with the water to form a thick paste. As the water moves over the ground, it draws a film of this slime over the soil. This pasty coating seals the pores of the soil, preventing any water from filtering into it. As the soil becomes less and less able to absorb water, the run-off increases and continues the vicious circle of erosion. Unable to absorb water, the dry soil is also easy prey to the wind.

Surface run-off is responsible for the most destructive of all forms of erosion--sheet erosion. It washes away the topsoil in thin and, at first, unnoticed layers wherever land is not protected by a thick vegetative cover. Dust storms and far-spreading gullies stir the public imagination, but sheet erosion, though less dramatic, is the real problem on New Jersey farms. After sheet erosion has eaten away most of the topsoil and destroyed its firmly knit structure, rushing waters cut deep down into the soil, forming gullies.

Gullies appear with increasing frequency in New Jersey, especially on the orchards and vegetable farms of South Jersey. Near Phalanx in Monmouth County an unusually large gully, less than four years old, is 35 to 40 feet deep, 125 feet across and 150 feet long. Many farmers are likely to regard the appearance of gullies as a sudden and unexpected misfortune, not realizing that they are symptoms of the most advanced stages of sheet erosion.

The early settlers of New Jersey had to clear fields and turn under the sod to plant for a harvest. Down came the wilderness. The greater part of it went up in smoke, for raging fires were the quickest and easiest way of clearing the land for farming. Hills and slopes were thus stripped of the natural protection afforded by forest and sod.

To supply the demands of rapidly increasing population more and more land was put under cultivation. During the period from 1850 to 1920 the farm area varied between two-thirds and one-half of the entire area of the State. Meanwhile, unnoticed, the rich topsoil was being steadily depleted.

Studies made by soil experts indicate that soils that are spaded or plowed deeply year after year erode rapidly. On the other hand, forest- or grass-cov-