

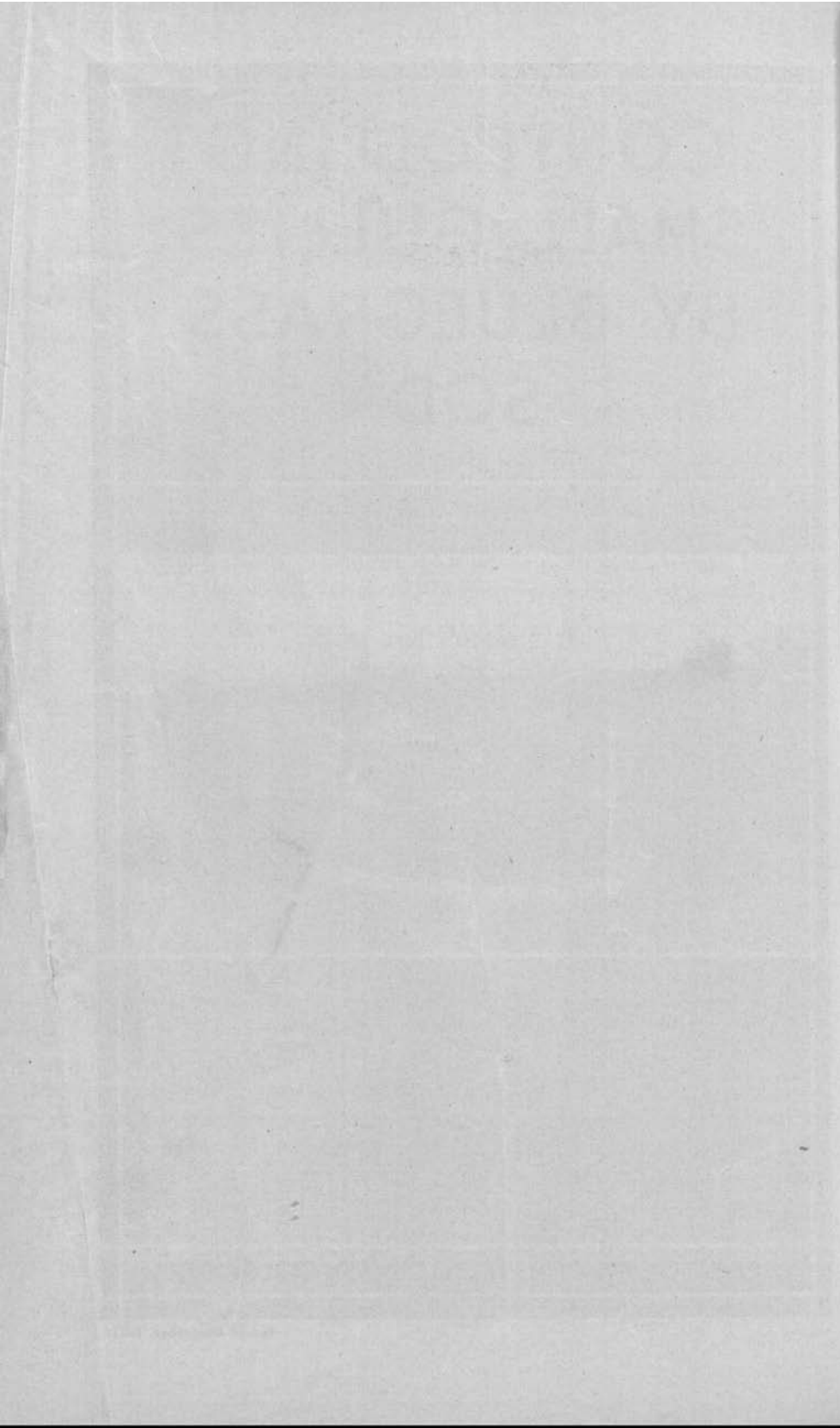
CONTROLLING SMALL GULLIES BY BLUEGRASS SOD



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History of Sod Barriers or "Living Dams"

Various means of controlling gullies have long been used in North America, chiefly earth, rock, or brush dams and fillings of straw, manure, or trash. A few farmers in Missouri and possibly in other localities have for several years successfully employed sod barriers in obstructing the growth of comparatively small gullies.

The author has used bluegrass bag barriers in central Missouri for several years and has observed their use by a number of farmers. They offer promise in checking small washes in wheat, barley, and oat fields, in meadows, and in pastures where gullies have started in livestock paths.

Construction of Sod Barriers

The barriers¹ are made of old burlap feed or fertilizer bags, partly filled with good sod of bluegrass or other grass—Bermuda grass might be used in the South—placed across the bottom of washes as shown on the cover page. Feed bags with small holes and fertilizer bags considered worthless are entirely satisfactory. They are securely tied and placed in the wash to form dams, with their centers downstream and their ends extending up the sides of the gully, so that the water may run over the centers and not form new washes around the ends of the bags.

The sod is cut in small squares, with plenty of good soil left on the roots. The grass soon starts growing through the meshes of the bags to form a dense sod. By the time the barrier is well established the bags have rotted away, offering no obstacle to operation of farm implements. The bluegrass spreads and each rain deposits soil on the grass and above the dam. As the grass grows through this deposit and spreads above the dam the wash gradually fills, the sod effectively holding the soil in the small washes. Larger dams than those illustrated will be effective in larger gullies.

Some farmers in Iowa, Missouri, and other States find it satisfactory to leave bluegrass or timothy sod in all depressions or small washes of cultivated fields. This practice is increasing in the Corn Belt.

¹ UHLAND, R. E., and WOOLEY, J. C. THE CONTROL OF GULLIES. Missouri Agr. Expt. Sta. Bul. 271. 23 p. illus. 1929.

Use of Sodded Strips without Burlap Bags

Barriers in small depressions on short, not too steep slopes may be made of bluegrass sod without bags. This is being extensively done to hold the shoulders along concrete roads and to hasten the establishment of good sod. For this purpose the sod is cut as for placing in the bags, but in longer strips. Plenty of soil should be left on the roots and the new grass strips set in trenches dug for the purpose. Both this and the "sod-bag" method are being tested at the Bethany Soil Erosion Experiment Station, Bethany, Mo.,² for protecting outlet ditches from terraced fields. Economical control of terrace outlets, an important problem in erosion control, must be solved before terracing will be entirely satisfactory in all localities. It is believed that prompt establishment of bluegrass, brome grass, or similar grasses in these outlets will aid in controlling erosion.



FIGURE 1.—Timothy and bluegrass sod has prevented formation of a deep gully on this hillside

Stabilizing Steep Banks of Gullies With Bluegrass Sod

Bluegrass sod proves fairly effective in helping to stabilize the banks of deep and troublesome gullies. As the banks become less steep the grass gains a foothold, spreads, and covers and stabilizes them. A very little help from the farmer greatly hastens the natural course of this process. If the drainage area is large, some mechanical checks of woven wire, brush, or rock may be necessary in the bottom of the ditch to prevent its deepening. The steep banks are plowed in to reduce their slope, sod strips are placed along the sides of the gully, and a mixture of equal parts of timothy, alsike clover, and red clover, with some bluegrass, Lespedeza, and redtop, is seeded over the entire gully. (Fig. 1.) Although this will not cause the gully to fill, it will largely prevent its growth and branching.

² This station is conducted cooperatively by the Bureau of Chemistry and Soils and the Bureau of Agricultural Engineering of the U. S. Department of Agriculture and the College of Agriculture, University of Missouri.

It may be practicable to set black locust trees along the sides of the banks, as shown in Figure 2, and willows in the bottoms of the gullies, which usually remain wet, and are suited to the growth of willow settings or small trees. Black locust grows very rapidly even on exposed subsoil, does not shade the ground too much for bluegrass, and is well suited for the banks, holding them effectively, and making excellent fence posts in about 10 years.

Sod Checks Hold Soil

Good fills have been obtained above both the grass barriers and the woven-wire checks in an experiment which has been under way for several months at the Bethany Experiment Station. Although erosion has removed the surface soil and exposed the subsoil on all slopes and in the small washes, enough fertilizer remained in the



FIGURE 2.—Black locust trees set on banks of steep gully in Iowa. Although but 18 months old, the trees are well established

bags containing the sod to stimulate the bluegrass itself and the wheat planted in the plots on which the experiment is being carried out.

The purpose of the experiment is to compare net returns from terraced land and from unterraced land similarly cropped but with sod barriers used extensively in the small washes on the unterraced land. A third plot, left as a check, is being handled much as the average farmer handles his land. The experimental plots were limed and fertilized and are planted to a 4-year rotation of corn, oats, wheat, and clover and timothy. At the beginning of the experiment the washes on both areas were plowed in, one area was terraced, and a few woven-wire checks were installed in the larger gullies of the other. (Fig. 3.) Following the seeding of wheat, bluegrass-sod barriers were placed in all the small washes of the unterraced plot, as indicated on the cover page and in Figure 3.

Farmers Adopting Grass Barriers

Grass barriers, whether alone or used in combination with other methods, seem to promise such effective control of small washes in small-grain fields, meadows, and pastures that many farmers near



FIGURE 3.—Woven-wire dam in foreground with sod barriers in background at Bethany Soil Erosion Experiment Station. A considerable quantity of soil has been deposited above each sod check and also above the woven-wire dam

the experiment station are already using them. The barriers appeal to farmers because they are so easily and cheaply installed that any number needed to check the small washes can be used.