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## EVILS OF SOIL EROSION

A radio address by H. H. Bennett, Department of Agriculture period, National Farm and Home Hour, August 21, 1933, broadcast by a network of 48 associate NBC radio stations.

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Hello, Farm Folks:

It has been quite a while since I talked to you about the evils of soil erosion. During this interval much land has washed away. We have not yet conquered the evil; indeed, we have hardly begun the fight. But we are learning how to fight, and we are beginning to see a bit of daylight ahead.

Let me tell you about some amazing things that have happened recently-- some results that stand out far ahead of any conception we have had about the prodigious cost of erosion, as measured in terms of soil and water losses. And permit me to say something also about the almost undreamed-of efficiency of thick-growing vegetation as a measure of soil conservation. Let's go up in Wisconsin, out on the erosion experiment station near LaCrosse, and see what has happened.

Here, on the first of July this year, 2 inches of rain fell in a field of corn having a slope of 16 feet in a hundred. This field was on the most important type of farm land in all the rolling country of southwestern Wisconsin, an important farming section, comprising approximately 12 million acres. It is a corn, grass, grain and dairy country.

The soil washed out of this corn field was carefully measured, as well as that stripped from various other fields. The amount of water lost as runoff was measured also. In one field this single rain washed from each acre, 39 tons of soil; and 27 percent of all the water that fell ran off into the valleys as so much waste. From a badly eroded cornfield having exactly the same slope, 35 tons of soil per acre and 40 percent of the rain were sent speeding toward the Mississippi River.

Think of it: a single rain in a few brief moments washing from a corn field a layer of soil which nature had taken a hundred years to build. If that is not land devastation with a vengeance, please tell me what is.

This means that after the sponge-like topsoil of the productive virgin land has been slowly washed off, a little with each rain, erosion then begins to get in its deadly work at an appalling rate, just as it is now doing over the greater part of this section and over numerous other sections like it throughout the United States. Already, many thousands of acres of once good farm land in this region have been denuded of the surface soil, down to comparatively poor subsoil, on which the yield of corn has been tremendously reduced.

Let's look at the other side of the picture. What happened on the same kind of land, occupying the same degree of slope, and subjected to the same rainfall, where, instead of corn, grass was grown? Instead of the enormous loss of both soil and rainwater, not one particle of soil washed away from this grass field, and every drop of the rain soaked into the ground. If any one had told me a few years ago that such a thing could happen I would not have believed it, even  
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though I knew then that forests and plants like grass are the most effective implements employed by nature in stabilizing the land. Think of the powerful effect these super water-absorbing crops would have on flood control, and think also how stupid we have been in waiting until this late date to find out these vitally important facts--this information we should have had 75 years ago.

We are getting similar results from our other erosion stations scattered about the country, and we feel it is our duty to make practical use of this most basically important information relating to the problem of permanent soil productivity. That is precisely what we are doing, with all the energy at our command.

Let's take a single example. We are making use of thick-growing vegetation, such as grass, lespedeza and alfalfa, on erosive slopes by planting these crops in strips along the slope contours, that is, across the fields on the level, not up and down the fields. Between these strips, are sandwiched in similar strips planted to clean-tilled crops, as corn, cotton, tobacco and potatoes. This method is giving splendid results in Wisconsin, Texas, Oklahoma, North Carolina, Missouri, Iowa, in fact, everywhere we have tried it.

Last week I had one of the greatest surprises of all my experience. It was in the form of a report received from George Musgrave, Superintendent of the erosion station between Clarinda and Shenandoah, Iowa. This report was to the effect that in a sloping corn field there had been no serious washing for a period of one and a half years, and this where uncontrolled rains have been steadily draining away the fertility of one of the finest areas of corn land the geographers of the world know about, the loess soil of the Missouri River Valley.

Why was there no erosion in this field where formerly rich soil had been flowing away with every heavy rain, like leaves scurrying before the winds of autumn? It was because the field had been divided into strips and the strips had been planted alternately to alfalfa and corn. The alfalfa caught the rain and sank it into the ground where it fell. The corn in the parallel strips between was grown on contoured ridges. In this simple inexpensive way, the rich surface soil has been held in the field where it belongs. The strip-cropped area lost only one pound of soil per acre throughout this entire period of 18 months; whereas, on the same kind of land, where corn was grown according to common practice, the corresponding loss was 9 tons of soil per acre, or 18 thousand times as much. Such a saving is nothing short of revolutionary in its significance. What it is going to mean to the future of American agriculture can scarcely be estimated. Ten thousand farmers should see this field at once. Musgrave will show you the details of the work if you will visit the erosion farm. He will show you also what enormous amounts of soil are being swept from corn fields on the same kind of land, cultivated in the way thousands of farmers are cultivating today.

Strip cropping is simple, it accords with the teaching of nature, it encourages a balanced type of agriculture and the practice of soil-building rotations. In some parts of Wisconsin the method is in almost universal practice already. It is but one of a number of ways by which erosion can be controlled or largely minimized with vegetation. There are other ways that I shall not have time to mention

just now; but I do want to add that vegetative measures of erosion control apply, in one form or another, to all kinds of soil, to all degrees, of slope, to all types of agriculture, and to all varieties of climate where there is enough rainfall to make plants grow. This can be said of no other method for controlling erosion, even though there are other excellent methods.

Vegetation of the thick-growing type is nature's principal tool for permanent soil conservation. But we can not, of course, put all of our land under such stabilizing crops. Nevertheless, there are some 60 to 75 millions of acres in cultivation, used largely for the clean-tilled crops, the real producers of erosion, that should either be devoted to trees or seeded to permanent pasture, and this without further delay. A much greater area should be strip-cropped or otherwise controlled.

This I say on the basis of surveys and measurements which show that we have been building in this country an empire of worn-out land as rapidly as we have been able to go about it. We have destroyed already 35 million acres of formerly tilled land, largely good land; and we have pretty well completed the job of stripping the richer surface soil from 125 million acres more, all of which is now in cultivation. At a rapid pace we have been heading toward subsoil farming in this country. Subsoil farming, remember, is bankrupt farming on bankrupt land. If we think anything of the permanency of our country, we should join in a great national combat against further spread of this destroyer of our indispensable agricultural lands, the substance of our economic life.

Thank you.

