

Erosion Wastes More Than 230,000 Tons of Soil

Washington County Survey Shows Alarming Land Loss

WINTER RUNOFF ON SLOPING FALL-SEEDED AREAS DEPLETES IRREPLACEABLE AGRICULTURAL VALUES

By Herb Boddy

Washington county's soil losses from winter runoff were set at more than 230,000 tons by a recent U. S. Soil Conservation Service erosion survey team.

The survey, conducted by the Service, included all upland farming areas of the Willamette valley watershed and showed a total soil loss of more than a million tons.

Of the 26,000 acres of eroded agricultural lands in Washington county, the severest land damage was found to have occurred on sloping fields planted to fall-seeded grass, small grains, or grain mixed with vetch. Soil conservationists recorded soil losses, ranging up to 50 tons per acre, east of Banks, and in the vicinity of Forest Grove, Gaston and the Chehalis mountains.

Oke Eckholm, district conservationist of the Portland area, who with Bill Hill, state soil scientist and Elliott Flaxman of the regional staff, formed the survey team, said losses were caused mainly from farming up and down hills instead of across slopes, and the lack of a combination of good land use practices.

Orchards in Washington county were found to be generally safeguarded by cover crops. But, in a few cases, severe erosion occurred when runoff from adjacent fields collected in the vicinity of orchards and cut through them, enroute to developed waterways.

Million Tons Lost

Sloping agricultural lands of the Willamette valley lost more than a million tons of fertile topsoil, while individual farm erosion losses ranged from one to 100 tons per acre, during one of the worst winter runoff periods on record.

The huge soil erosion damage figure which topped the million-ton mark affected approximately 97,000 acres. It occurred mainly on fallow fields, fall-seeded grainlands, hillside row crop farms and on some upland orchard acreage in watershed areas throughout the valley, the survey conducted by the Portland headquarters of the U. S. Soil Conservation Service shows.

Not generally tabbed as an "erosion danger area" by Portland and valley residents, the gullies, rills and scoured farmlands now visible on many farms in Multnomah, Clackamas, Washington, Yamhill, Marion, Benton and Polk counties clearly illustrate the need for immediate erosion-combating measures, Service officials point out.

"We have long known that soil losses from winter run-off were mounting in the Willamette valley watershed," Eckholm explained. "But, not for many years have erosion landmarks stood out so prominently. The hundreds of erosion marks, which can now be viewed in hillside areas and lands sloping back from the valley floor, have made farmers and conservationists alike more conscious of the problem."

Weather Reviewed

Beginning in December when rainfall averaged 3 inches above normal throughout the valley, a combination of weather factors including high winds, melting snow and thaws teamed up to produce a strong erosive force. Soaking of farmlands by the heavy rains of February 9, 10, 17 and 18, and melting of partly frozen soils, caused most of the erosion and flood damage during the winter. In parts of Benton and Clackamas counties a blanket of snow protected fields from run-off during February's heavy rains.

Most erosion landmarks visible today on Willamette hill lands are of the rill type, or small gullies, though in at least a few instances fields were rutted to a depth of six feet.

Soil conservationists reported that not more than 20 percent of eroded soil was deposited in watershed areas, the bulk of lost soil having been carried out to sea by tributary streams.

Physical Survey Made

Erosion surveyors were able to reach most of the highland farming communities rimming the valley. Equipped with tape and soil auger, they measured the depth and width of erosion rills and calculated the amount of soil lost per acre on a cross-section of farms.

In many upland areas they found erosion-free farms, adjoining severely damaged row crop and fall-seeded grainlands. Good cover crops were firmly holding soil on some of the steepest watershed lands. Other soil con-

servation practices, which were observed to be effectively controlling erosion, were mulching—leaving a trashy cover of straw and crop residues on the surface—; contour terraces; grassed waterways to drain runoff and strip-cropping.

In the southern portion of the Willamette valley, erosion and other problems of the land are being carefully worked out with Soil Conservation Service technicians and through the farmer-voted Santiam, and Linn-Lane soil conservation districts.

Not much more than a year old, these farmer-managed districts are beginning to lay a ground-work of time-tested soil conservation practices as the first step toward safe and full use of the lands. Complete soil and water conservation practices, including erosion control measures, are integral parts of the long-range objective of such districts.

Conservation Insurance

That soil conservation is insurance against erosion is illustrated in the contour terraces, designed by Soil Conservation Service technicians as a demonstration project near Rex, in Yamhill county, 10 years ago. On orchard lands with greater than 40 percent slope these terraces carried away run-off safely and prevented gullying of downhill fields. Where soil protection was lacking, the erosion forces that

Top picture shows the deep gully erosion of a walnut orchard north of Newberg. A steep hillside above this orchard lacked proper soil conservation measures and this is the result. A grassed waterway would have brought the water safely downstream.

Middle view illustrates contour terraces employed by E. W. Smith, walnut orchardist 3 miles east of Newberg. These curving, water-diverting ditches are an effective erosion combatting practice.

In the bottom illustration, damage to this fall-seeded grain field 5 miles northeast of Hillsboro is plain to see. Crops were not only lost by the hillside runoff. They were also buried by silt in the foreground.

washed a million tons of soil from upland farms played no favorites. It gullied clean-tilled row crop lands planted down slope. Orchards with good grass cover crops were practically unmarked. But, nut orchards, without a protective cover or those having poor water disposal systems, lost heavy tonnages of soil.

Other hard-hit areas were lands seeded to small grain, and grass or grain, too late for fall growth to provide protection for soils during the severe winter. About 85 percent of fall seeded land has been tilled up and down slopes.

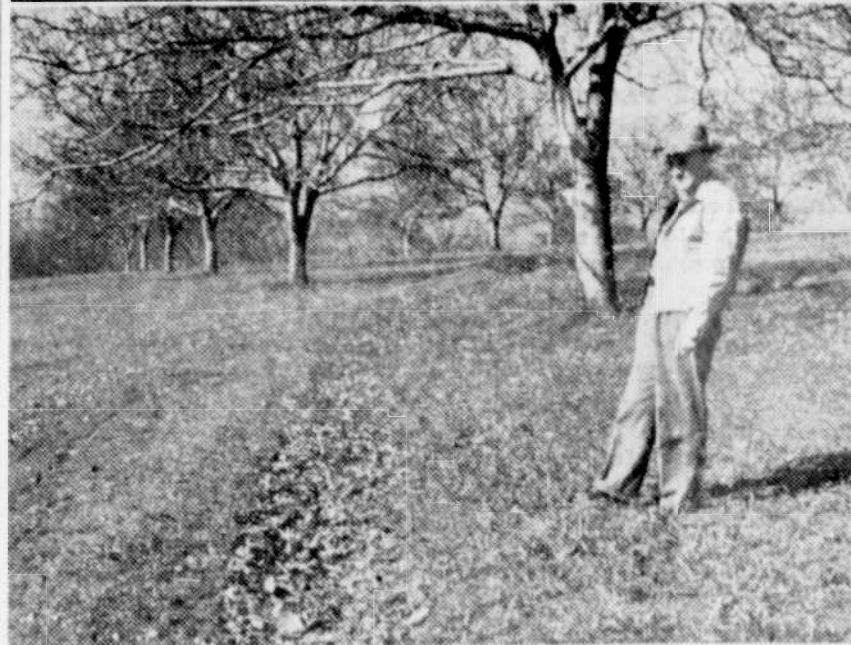
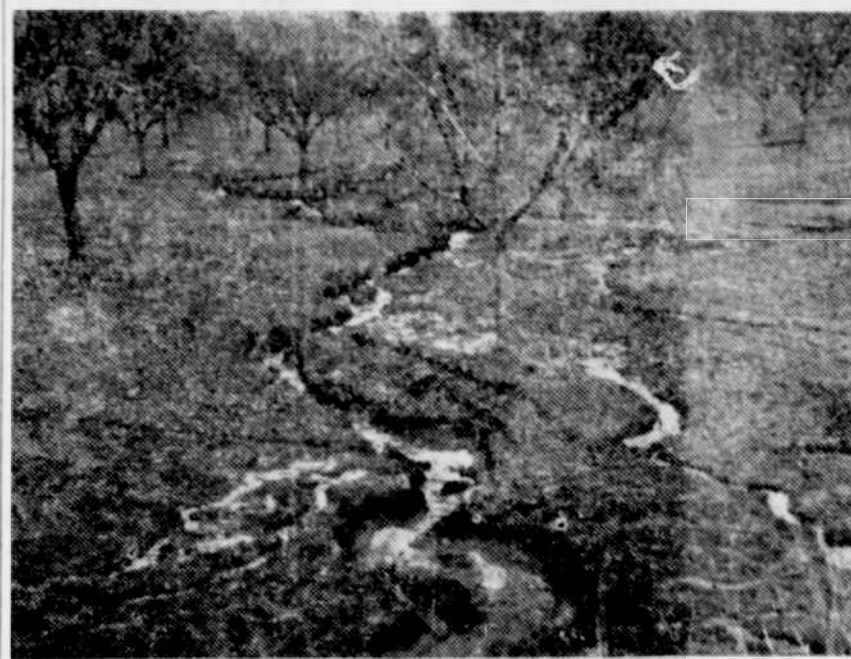
Row Crop Losses Heavy

Heaviest losses from the winter run-off were row crop growers, who suffered the highest soil damage on a per acre basis. First in terms of soil tonnage losses were farmers growing small grains, and fall-seeded grasses along the slopes of the Willamette watershed. More than 750,000 tons of soil were lost on such lands.

Older stands of grass, well anchored in soils, suffered only minor erosion damage, while wide-spread erosion of small grain fields was observed in Washington, Polk, Benton and Multnomah counties.

Summing up the damaging affects of erosion on the valley's upland agriculture, Eckholm said the land damage survey revealed two important land facts. (1) Crops can be grown on sloping lands with the right combination of soil conservation practices. (2) Some eroding, steeply sloping grain lands should be put in pasture to provide a permanent cover for soils. In short, there is a greater need for using the valley's sloping lands for the purpose for which they are best suited. Soil Conservationists call this "farming according to capability of the land."

MOTHER EARTH TO THE SEA



(Pictures by Soil Conservation Service, U. S. Dept. Agri.)

Groups Organize Fight to Combat Loss of Top Soil

To combat the annual, terrific loss of top-soil through erosion and lack of sound soil conservation practices, groups within Washington county have begun to organize, reports Thomas Smithson, consulting engineer of Beaverton, Oregon.

At the March 26 meeting of the Farmers' Union, Smithson and attorney John Chinook, of West Slope, spoke on plans of the army engineers for the county and led discussions in the matter of forming a county-wide drainage district.

A committee has been appointed by the farm group to recommend a plan whereby existing drainage districts in the county might work together on the serious topsoil problem and whereby new districts might be formed for complete coverage of the drainage problem.

On April 30, in Hillsboro, the Farmers' Union will again discuss the drainage problem. Mark Nelson, chief of the planning branch of the army engineers will be present to report on tentative plans and details regarding the Tualatin river and its tributaries. The public is welcome to attend.

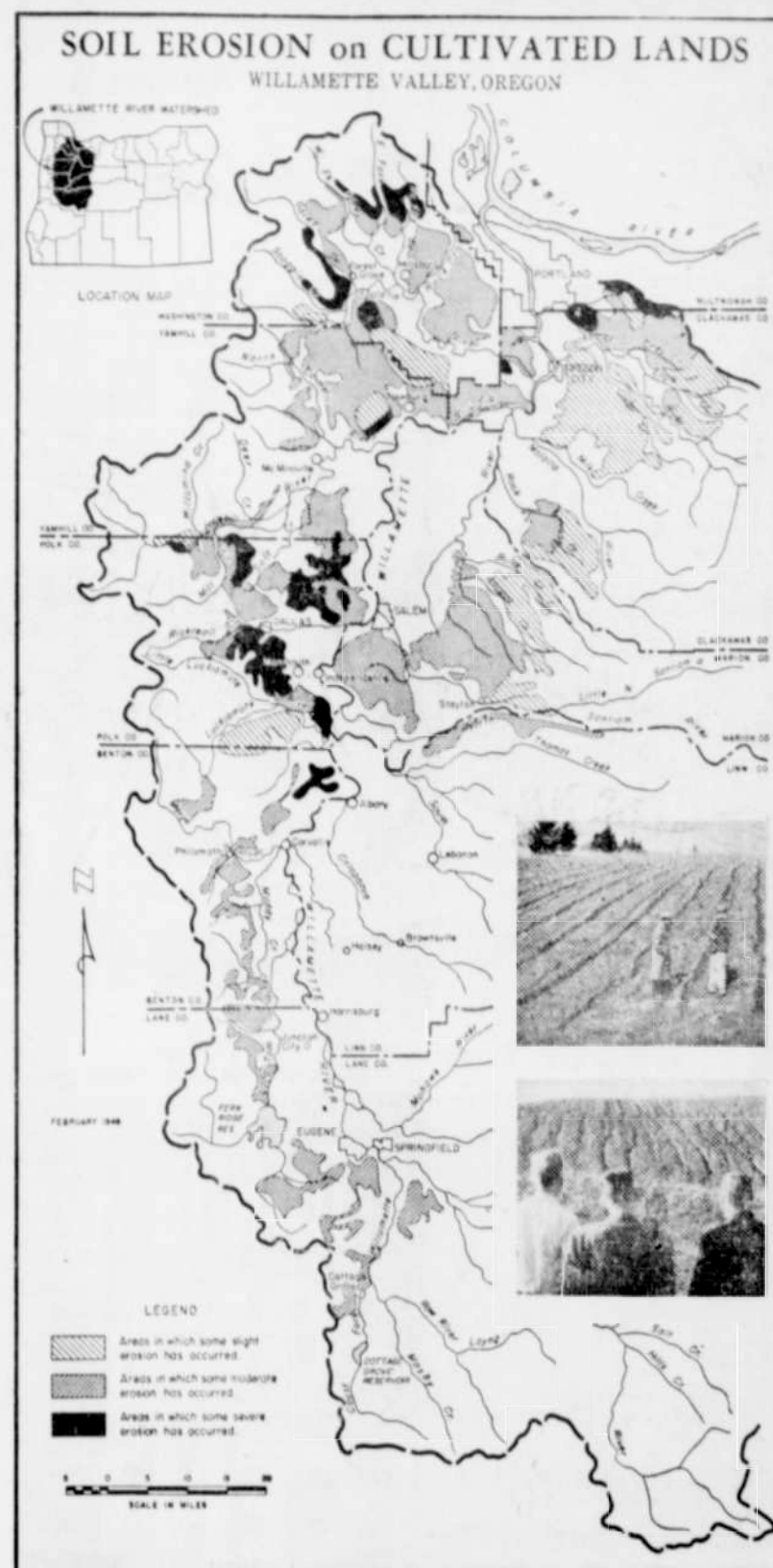
The federal government, it is pointed out, can only deal with the Tualatin river and its main tributaries. Drainage on smaller creeks falls entirely upon local districts, either established or to be formed.

According to Palmer Torvend, county agent, 53,000 acres of county land have extremely poor drainage and another 40,000 acres have poor outlets to excess water. A large reason for this condition is the meander of the Tualatin river, which aggravates water runoff.

Originally, the army engineers proposed lining the banks of the river with concrete, in addition to straightening its course and making swifter drainage of tributaries possible. Because of objections, however, the concrete project has been abandoned, although the basic plan of straightening out the river is still being worked on.

Torvend points out that it costs the farmer more to work land which is poorly drained. Irregularly shaped field and a definite limit of crop results. With the amazing population growth taking place, factors of soil fertility and maximum land yields take important precedence.

The county agent recommends contour farming and permanent pastures wherever they prove profitable. And he believes the drain-



age problem can best be met in a county-wide effort, under provision of the law setting up soil conservation districts.

If there is a solution to the county problem, he further points out, it will largely be paid for by the federal government. On this study, however, there is a great deal of misinformation, and Torvend warns against any belief that completion of the Tualatin river project, by itself, will solve all problems.

Also required are the best practices of soil conservation. Contour

farming, grass-seeded drainage ditches and other procedures require planning and cooperation of individual farmers and groups as well.

The Tualatin river project, Torvend declares, was started at the insistence of people affected by it. Senator McNary was mainly responsible for its inclusion in the Willamette basin development plan.

As a private project, improvement of the Tualatin river watershed would be of prohibitive expense.

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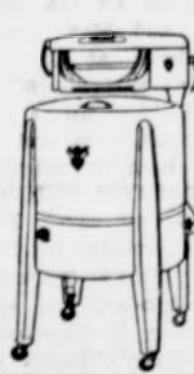
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