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SOIL EROSION SURVEY
OF
CHARLOTTE COUNTY, VIRGINIA.

A soil erosion survey was commenced in Charlotte County, Virginia, October 1st, 1926, for the purpose of determining the amount of farm land that is being washed away or is subject to the process of erosion, the economic loss from soil erosion each year, and the best methods by which it can be controlled or prevented.

In connection with the personal survey of farms, terracing demonstrations were held for the purpose of instructing the farmers in the proper methods of laying out, constructing, and caring for terraces.

Considerable work along this line has been done in Charlotte County in the past few years, but there is a lack of sufficient information to obtain the best results under Virginia conditions and soil type. The terraces formerly constructed are preventing erosion to some extent, but not as they should. In most cases, the grade or fall is not sufficient to carry off the water without filling the terrace with sand which causes the water to overflow the terrace bank and start a gully in the field. On the other hand, the grade or fall is too great and the terrace itself eventually becomes a gully. Investigation must be made on the different soil types to obtain the correct grade or fall in inches per hundred feet to give a terrace, in order that it will neither fill up or wash out.

The terraces constructed as demonstrations were on farms selected with the assurance that the farmer would construct them and care for them as specified. Experimental data can be taken from these terraces and the desired information obtained in the near future.

Personal surveys or studies have been conducted on 50 Charlotte County farms. This number, however, is not sufficient to give the average for the county. It is our plan to make personal studies of several more farms in the near future before deriving any permanent or reliable figures. The data given in this report are merely preliminary data. However, there may not be any very great changes either way in the final analysis.

The farms selected were as nearly the average of the county as was possible to obtain, but in case of doubt, if anything, they are a little above the average.

Preliminary data shows that with the topography and different types of soils in Charlotte County, 89% of the farm land is subject to soil erosion, while 71.5% of the land is actually washing to some extent, either by sheet or gully washing. Sheet washing occurs to a great extent on both grey and red soils, while the latter occurs mostly on the red soils, but in many cases gullies are washed in grey soils during heavy rains.

Evidences of the results of soil erosion can be seen in Figure 3. This field, containing 65 acres of land, was abandoned last year on account of soil erosion. Note the gullies formed and rock washed out by surface washing. Terraces have been laid out on this field and are under construction in hopes that the field can be reclaimed.

Of the farm land abandoned, nearly 100% can be reclaimed by proper methods of controlling the flow of water.

The approximate loss per year from soil erosion is very difficult to determine. However, from personal studies on the fifty farms and from the farmers' knowledge of how much washing takes place, an average of 11.2% of the land washed away each year. That is, if proper care and cropping systems are not practiced, at the end of 11.2 years, the land would be washed to such an extent that it would have to be abandoned or reclamation projects begun. This fact, no doubt, will show the importance of preventing soil erosion by the proper coordination of terraces, tillage methods, and crop rotation.

As a result of soil erosion, approximately 3.9% of farm lands in Charlotte County were abandoned last year, or nearly 4,000 acres of what was once the best farm land is now waste land. Either the fertile top soil has been washed away or gullies have formed to such an extent that the soil has been rendered too poor or unproductive to farm.

a complete Report of this project is now in preparation & should be ready by the 1st of August.

Terraces and Water Furrows on the 50 Farms.

Eight of the 50 farmers have portions of their farms terraced, and the majority have obtained very satisfactory results from this method of preventing soil erosion, but in a few instances, the terraces were poorly constructed and cared for, therefore, serious damage was done to the fields where the terraces failed to carry the water. Terraces or water furrows improperly constructed do considerably more damage than they do good. It is important, therefore, that pains be taken to lay off and construct them properly, after which too much care cannot be taken of them.

Water furrows or hillside ditches are used on 23 of the 50 farms as means of preventing soil erosion. They are usually temporary and are laid off by eye with an ordinary turn plow after the crop is planted. Water furrows, constructed in this manner, as a general rule, either fill up or wash out and give anything but satisfactory results, particularly on steep land or where intercepting drains are necessary. The length of a water furrow is limited, not exceeding 300 to 400 feet, due primarily to its capacity for carrying water. It cannot be said that water furrows can be recommended over terraces with but one exception, and that is on very steep hills when it makes the construction of broad-base or Mangum terraces too expensive. Other lands should be terraced using a broad-base terrace that can be cultivated over without serious injury to the terrace or loss of crops.

In connection with the soil erosion survey in Charlotte County, terracing demonstrations were given those farmers who were interested and would assure us that they would construct and take proper care of the terraces. These terraces were constructed to serve a two-fold purpose, - first to prevent the loss due to soil erosion on the farms and through these benefits promote greater terracing campaigns in counties needing them; second, to serve as an experimental terrace, upon which future studies can be made of their success or failure, to establish reliable data that will be helpful to both the Extension Division and the farmers.

Terracing demonstrations were given on 27 farms in Charlotte County. A total of 98,900 feet of terraces, water furrows, and hillside ditches were laid out on 700 acres of land, 12,375 feet of which was actually constructed for demonstration purposes. Since the demonstrations, 32,400 feet have been constructed by the farmers and before Spring all those laid out should be constructed.

A record is kept of each terrace, showing the type of soil, length, grade, and condition of the land in regard to gullies and washes. These records are kept on file so that in future studies of these terraces their individual faults may be remedied.

Terraces were constructed with uniform and variable grade of different fall per hundred feet on the different soil types in order that the proper grade could be determined which is adaptable to Southern Piedmont Virginia.

The farmers seem very enthusiastic toward this work, judging from the interest taken and the number of requests for demonstrations in Charlotte County alone. Besides the 27 demonstrations already given since October 1, 1926, the county agent has on file nearly that number of requests not yet filled.

Groups of farmers in three communities have decided to purchase farm levels to do their own terracing. Also many farmers already have homemade levels by which they construct their terraces and water furrows to proper grade.

If interest in soil erosion continued, the farmers with the instructions on proper methods of construction and care of terraces will be in position to help themselves and much of the loss due to soil erosion will be stopped.



*Fig. 4. A broad-base terrace under construction
Note grade furrow on upper side plowed
out first.*



*Fig. 5. Terrace in fig. 4. completed. Center of
ridge 18 inches higher than base or
ground level.*



*Fig 1 A gullied field two years ago reclaimed by terracing
Note terrace*

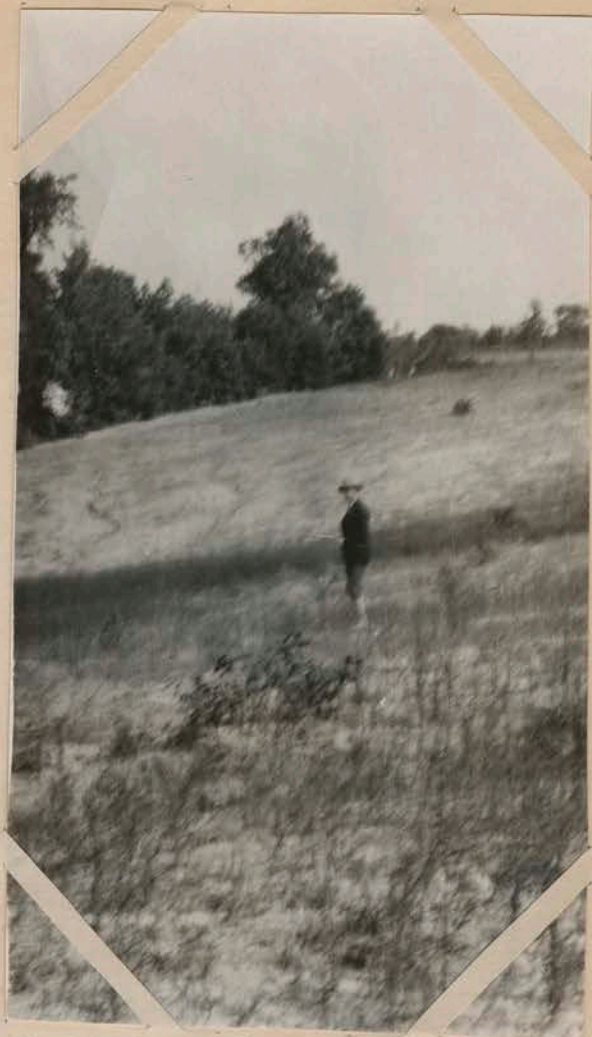


Fig 2. Result of both sheet and gully washing.



Fig.3. A 65 acre field abandoned last year because of gullies.