HUMUS AND SOIL EROSION*

ONE of the most beneficial properties of humus in soil is its capacity to absorb and retain water, thereby restricting erosion. This characteristic is of the greatest importance to the farmer in his struggle against soil erosion.

The lack of humus in arable lands manifests itself in the ease with which dongas are formed, the compacting of the soil and formation of a hard crust after every shower of rain, the rapid desiccation of the soil and the poor absorption of rain in comparison with the amount precipitated. This lack of humus results in poor germination and growth of crops, and relatively poor yields even though fertilizer is applied.

In many cases this deterioration is the direct result of continuous intensive cultivation of the soil without giving it an opportunity to lie fallow so as to make possible the accumulation of organic matter in the form of grass, shrubs, &c., in the form of humus or in order that the soil may be enriched by the ploughing under of green manure, straw, stable-manure, &c.

The difficulty may be largely met by allowing permanent pasture grasses to occupy a definite place in the crop-rotation system of the farm. The good vegetal cover of land planted to such pasture grasses will reduce run-off to a minimum while incessant combustion of vegetable and animal matter as a result of continuous cultivation of the soil is also eliminated. The dung of animals grazing on such grasses is beneficial, and a mass of material in the form of leaves, stalks and roots is available for conversion into humus.

The problem of soil erosion affects not only cultivated lands but also natural grazing where this evil may perhaps have even more serious consequence. Erosion, desiccation and poor plant growth are also encountered in the natural veld and are the direct result especially of overstocking, trampling out and burning of the veld which prevent any plant material from being available for conversion into humus. Soil-erosion works can yield the desired results only when an improvement is effected in the physical structure of the soil so that water made available can be absorbed and retained. This capacity can be increased considerably when sufficient quantities of vegetable and animal matter are introduced in the soil. Consequently it is essential that overstocking, trampling out and burning of our natural grazing should be eliminated immediately and that a system of grazing should be applied in which the natural pasture plants can develop to the fullest extent so that as much organic matter as possible may be returned to the soil in the form of humus.

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* By J. C. S. Brandt, Extension Officer, Smithfield, in the *Farming in South Africa*, Vol. XVI.—No. 184, July, 1941.