The leading farmers of the southeastern States for a long time have been keenly aware of the seriousness of the problem of erosion, and have, in general, modified their agricultural practices to give some degree of control. A study of the field experience of these farmers, logically, should be the starting point for the development of any program of erosion control. This paper presents facts and observations, gleaned from field work in the Southeast, which may merit some consideration in the development of sound practice.

Since clean cultivation of row crops is largely responsible for accelerated erosion, it follows that erosion control must be effected chiefly by modifications of the agricultural practice connected with the growing of these crops. This involves changes in land use and in the entire field of farm management, which, in turn, is based upon general economic factors. It would be a simple matter to control erosion by the elimination of all row crops and the introduction of sufficient quantities of close growing grains and grasses if high, or even adequate, markets for the resulting products were available, or if the farmer were not dependent on row crops for the major part of his income. These economic factors impose serious limitations upon the methods employed by the technician, and make any general solution over a wide area difficult. We are, in practice, forced to determine certain principles and content ourselves with using these as a basis for modifications of present agricultural practice. Effective modifications and changes of practice cannot be accomplished without a first-hand knowledge of field conditions as they now exist.

General Principles of Erosion Control

Obviously, the major factors considered in erosion control are climate, the physical properties of the soil, and the adaptation of soil to various kinds of vegetative growth. The interrelations of these variables must be considered in laying out any field program. These relationships are so extremely complicated, however, that in the present state of our knowledge we must rely upon field experimentation to obtain a solution.

From the field viewpoint, problems may be classified in two categories. First, the prevention of erosion on lands now in fair condition, or at least a sufficient retardation of erosion to permit soil building practices to be effective; second, curative problems such as the healing of dangerous gullies or the reclamation of land ruined by severe sheet erosion. The technical processes involved in either of these categories may be classified under five headings: (1) reduction of runoff by increasing absorption, (2) prevention of large concentrations of runoff on steep slopes by interception, (3) local de-energizing of runoff water by vegetative growth or artificial structures, (4) avoidance of exposure of soil during seasons of heavy rainfall, and (5) building of fertility levels to a point where vegetative cover can be effectively produced.

Under a given condition of climate and slope, the application of the general principles of control must be based upon a knowledge of soil properties which considers the various horizons and "producible" vegetative structures...