I. INTRODUCTION

Soil erosion has long been considered a threat to agriculture in humid regions. Recognition of erosion as a problem on irrigated lands is relatively recent, yet many who have intimate knowledge of irrigation are deeply concerned. Israelsen et al. (1946) reporting on a 6-year study of soil erosion in irrigation furrows stated that “... excessive soil erosion on irrigated lands is adverse to the perpetuation of permanent agriculture in arid regions. The authors have seen, on many occasions, sugar beet (Beta vulgaris L.) lands in Utah, USA in which, after the first irrigation season, the furrow depths near the head ditches have been eroded from 2.5 to 10.2 cm (1 to 4 inches). On the other hand, the lower ends of these furrows have been completely filled with soil eroded from the upper ends.”

It is ironical that the water brought in to give life to the desert lands could indirectly also be the means of destroying them. Though irrigation implies that man has control of the water, there are limits below which one cannot reduce the flow rate or the length of run or slope. Also, the soil over which this water flows must be kept friable and cultivated.

Robins and Neff (1963) stated although many of the problems associated with land and water resources are accompanied by a cyclic opportunity for improvement or renewal, soil erosion is a conspicuous exception to this “renewable” concept. Once a portion of the soil mantle is removed by erosion, it can be restored only by extreme measures that are generally too slow or too expensive for consideration in the foreseeable future.

Early irrigation literature dealt almost exclusively with water and its relation to crop production. As irrigation became more widespread, references to erosion and to erosion damage became more frequent. Taylor (1935) reported results of a study on the influence of tillage on infiltration and erosion under furrow irrigation. Taylor (1940) reported on the relative transporting power of furrow streams.

In 1937 the Soil Conservation Service measured irrigation furrow flow and resulting soil losses from potato (Solanum tuberosum) lands near Ellensburg,