USE OF A DAM PITTER TO REDUCE IRRIGATION RUNOFF

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Runoff water losses are probably as old as irrigation, however, with the diminishing supplies of water, land and the present day economics it becomes increasingly important to control runoff. The majority of the runoff from reasonably well designed sprinkler systems occurs from surface sealing of the soil. This sealing generally becomes more pronounced during mid to late summer when cultivations have ceased and water demand is high. The result is water starved crops, erosion, and, in some cases, ponding which all reduce production.

We have experimented with various means of achieving better moisture infiltration under both circular and conventional sprinkler irrigation. We have improved on our problem by using lighter, more frequent irrigations, by deep chiseling between the rows as late as possible in the season and farming to leave the maximum amount of trash we can handle in the surface.

In 1972 we used "dammer" or "diker" or "pitter" as it has been variously called on about 400 acres. This was an experimental design tool worked out by Fred Isenheart of Alloway Manufacturing Co. of Fargo, N. D. This tool built small dams or dikes in the furrow between the rows of potatoes or sugar beets. These small dams held the water in place so it could soak into the soil rather than run down the furrow. Results were very good, but mechanical problems and our lack of understanding of the tool created problems in terms of practical use. Assistance was provided by Dr. June Roberts and his staff in Agricultural Engineering at Washington State University in improving the machines design. During 1972 and the early spring of 1973, Dr. Roberts and Alloway arrived at essentially the design that was used on Eastern Washington row crops in 1973. The results were good and the Alloway Dam Master proved to be a practical tool. The results were better than we had hoped for, and we do expect to use it on all our row crops in 1974. It is not a substitute for good management nor does it replace the other things we have learned to do to control runoff, but it is a useful tool that serves a very real need.