ABSTRACT: Current practice design of On-Farm distribution canals causes inaccurate delivery of irrigation water to farm plots. Such feature leads to dispute among farmers. Moreover, loss of crop production is expected due to over and under irrigation. A second deficiency is the use of the drainage water by the farmers at the canal tail to supplement their needs which causes drop in land capabilities. The present paper offers a design procedure that ensures accurate water distribution. The procedure suggests the use of simple weirs downstream the pipe intake to create sufficient head to deliver the required discharge. It is shown that the current practice may lead to reduce the delivered water to the last pipe intake by up to 80%.