

MANGO PRODUCTION AND FRUIT QUALITY UNDER PROPERLY MANAGED DRIP IRRIGATION SYSTEM

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ABSTRACT

In Pakistan, mango orchards are traditionally irrigated through basin flooding method. Basins are made around a mango tree and flooded through a small channel. A huge quantity of water is lost in these basins as well as in these channels. To minimize water losses, modern micro-irrigation methods such as drip and sprinkler irrigation are introduced. They save precious water, produce quality fruits and higher yields. Several progressive farmers have installed drip irrigation systems in their orchards. This study describes, the water distribution pattern, irrigation frequency, required number of emitters and their orientation under drip irrigated mangoes. Each mango tree was irrigated by four drippers installed at a distance of about 50 to 80 cm from the trunk. They did not provide sufficient moisture around the canopy hence trees were under dry stress. To cover entire canopy, the system should be operated for additional hours. Also, the placement of the drippers was inappropriate which failed to irrigate the outer edges of the tree canopy. The lateral could be placed with circular orientation around the canopy to provide moisture and avoid dry stress. Several operational problems were observed that need to be locally resolved. The frequency and time of application should be set according to the daily consumptive use of the mango tree. The plant growth was almost similar under drip and basin irrigation methods. However, the signs of leaf wilting were observed under drip irrigated trees whereas lush green leaves were seen under basin irrigated trees. The fruit drop was higher under drip method; while the fruit quality and yield was better under basin irrigation method; this is attributed to dry stresses due to limited availability of water around the tree canopy.

Keywords: Canopy, drip irrigation, dry stress, fruit drop, fruit quality, mango growth.