

Fact sheet drip irrigation

Definition

Drip irrigation is a micro irrigation system. Drip irrigation is based on the constant application of a specific and calculated quantity of water to the soil crops.

The system uses pipes, valves and small drippers or emitters transporting water from the sources (tanks, reservoirs) to the root area and applies it under particular quantity and pressure specifications. The system can maintain adequate levels of soil moisture in the rooting areas. Drip irrigation can maintain the exact (or almost) moisture requirement for each plant and can significantly reduce water wastage and promotes efficient use.

Description

A drip irrigation system typically consists of:

- Pumps or pressurized water system
- Filtration system
- Backwash controller
- Systems control -pressure control valve (pressure control regulator), pressure gauges
- Distribution system -pipes (including main pipe line and drip tubes with emitters)
- Control valves and safety valves
- Poly fittings and accessories (to make connections)

How the technology contributes to climate change adaptation

Drip irrigation technology can support farmers to adapt to climate change by making more efficient use of their water supply. Compared to surface irrigation, which can provide 75 per cent, efficiency drip irrigation can provide as much as 90 percent water use efficiency.

Drip irrigation reduces demand for water and reduces water evaporation losses (as evaporation increases in high temperatures). Scheduled water application will provide the necessary water resources direct to the plant when required. Drip irrigation is not affected by wind rain.

Advantages

Drip irrigation can help use water efficiently. A well-designed drip irrigation system reduce water run-off through deep percolation or evaporation is almost zero. It is adaptable to terrains where other systems cannot work well due to climatic or soil conditions. Drip irrigation technology can be adapted to lands with different topographies and crops growing in a wide range of soil characteristics. It is particularly efficient in sand areas with crops such as vegetables. Drip irrigation systems are the best type of irrigation for windy conditions.

Disadvantages

The initial cost of drip irrigation systems can be higher than other systems. Final cost will depend on the terrain characteristics, soil structure, crop and water source. Higher costs are generally associated with costs of pipes, tubes, pumps, emitters and installation. Unexpected rainfall can affect drip system either by flooding emitters and moving pipes. Rodents or animals can damage drip irrigation equipment. It can be difficult to combine drip irrigation with mechanized production such as tractors which can damage pipes tubes and emitters. Drip irrigation requires maintenance and high quality water.

Knowledge and Monitoring Requirements

Investment will also be required to build capacities to accurately manage maintenance and water flow. For example the drip tape or tubing must be maintained in order to avoid leaking or plugging and emitters must be regularly cleaned to avoid blockage from chemical deposits.

Costs and financial requirements

The technology is widely variable, however the cost of a drip irrigation system ranges from US\$ 500 – US\$ 1200 per acre based on the specific type of technology.

Status of the technology in Grenada

The Irrigation Management Unit (IMU) provides support to farmers to install and operate irrigation systems. This Unit is based and operated by personnel from the Land Use Division. The unit has implemented several projects including the On-Farm Irrigation programme. Through this programme irrigation equipment was provided to farmers on a contractual basis. Additionally, under the Agricultural Enhancement and Development Programme (AEDP) implemented by GoG through the MoA Extension Division, loans of XCD 40,000.00 were provided to farmers to install drip irrigation systems.

There is no distributor selling this equipment in Grenada. The Marketing and Importing Board recently started selling equipment. The equipment is not compatible with the existing systems so farmers are unable to purchase spare parts from them.