

Localised irrigation best for Asal areas

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LOCALISED irrigation is a form of irrigation where the water distribution system cause wetting of only the root zone part of the soil in the field. Its main attributes are utilisation of low volume of water and possible use of saline water. It would help solve problems in Asals which are mainly low water quantities and poor quality water which is saline in most cases. It is a good irrigation alternative where the cost of water is high, on sloping and undulating land, where labour is expensive and water quality marginal.

Localised irrigation has been used commercially since the 1960s following the introduction of cheap plastic pipes. It is probably the most efficient in terms of water application and distribution and appears to be an ideal way of supplying plants with nutrients as well. The system uses 20-30 percent less water

compared to a well-managed irrigation sprinkler system. It can use up to 50 percent less compared to an inefficient surface system.

The system can utilise low water discharges thus reducing operating costs. The discharge within the system is generally low which allows for utilisation of low yielding water points such as springs and shallow wells.

Compared to other irrigation methods, localised irrigation is much easier to manage. Demand on labour is highly reduced after the initial installation. Water gets to the root zone through orifices, nozzles, micro-tubes or porous tubes. Sometimes it will only require the farmer to open the valve to start the irrigation and latter close after enough water has been applied. Automation in localised irrigation is possible. It has been achieved through timing. In more advanced cases, opening and

closing of valves is done by programming or use of sensing devices.

Other farm operations such as pruning and spraying can be done at the same time as irrigation. This would not be possible with conventional surface or sprinkler irrigation systems. The system gives easier control of pests and weeds as the tillage and some of the soil are not wetted.

Use of saline water is possible with localised irrigation. The system apply water frequently and this reduces the effects of salts. This is by keeping the concentration of salts in the soil water below damaging levels. It maintain a high moisture availability in the root zone and this prevent appreciable concentration of salts between irrigations. This way the crop does not withdraw water and salts from the soil. In conventional systems, the soil moisture fluctuates between

field capacity and near wilting point and this cause damage to crops due to high salt concentrations.

Overhead sprinkler irrigation with saline water can cause leaf burn and this can be avoided through localised irrigations.

Poor soils are difficult to irrigate. A soil with very low infiltration rate is difficult to irrigate by sprinkler method. On the other hand, very light soils cannot be successfully irrigated by surface methods. Localised irrigation gives better use of poor soils and have been successfully used on both kinds of soil.

Problems associated with localised irrigation are there. The system can get clogged by sand, silt, organic matter, algae, bacterial slimes and precipitation of calcium carbonate. This calls for filtration of the irrigation water to clean it. To protect against precipitation of chemicals

requires the water to be pre-treated with chemicals.

Another problem with localised irrigation is build up of salinity which mainly occur at the outer edge of the wetted soil mass. In case of light rain the salts can move downward into the root zone. This can cause severe damage to shallow rooted crops. Fortunately, in the semi-arid areas occasional showers experienced would provide enough water to leach the excess salts beyond the root zone and the soil can be irrigated with saline water all over again. Otherwise occasional supplemental surface water application might be necessary to leach out the salts.

Localised water application results in limited root development. Roots tend to concentrate in the wetted zone. If the zone is too small, the spread of roots will be affected and trees might get blown over

in strong winds. Another disadvantage of a confined root system which has become accustomed to regular feeds is that if the water supply fail, the plant would suffer more from stress than one which has developed under a conventional irrigation system. Therefore, while the supply for localised methods can be less abundant than for conventional methods, it must be absolutely reliable.

Localised irrigation does not provide atmospheric control. An example is where sprinkler irrigation systems are used for sunburn protection of ginger. It also gives humidity control for vegetables and flowers. It therefore follows that crops grown should be those accustomed to the regions climate.

Carrying out irrigation in the Asals seems to be our only exit from the ravaging poverty we live in.