Drip irrigation can be a great aid to the efficient use of water. A well designed drip irrigation system or subsurface drip irrigation system will lose practically no water to runoff, deep percolation or evaporation. Irrigation scheduling can be precisely managed to meet crop demands, holding the promise of increased crop yields and quality.

Why would you want to consider drip irrigation?

Drip irrigation will decrease water contact with crop leaves, stems, and fruit. Thus conditions may be less favourable for the onset of diseases. Often growers or irrigation professionals refer to "subsurface drip irrigation" or SDI. When the drip tube can be buried below the soil surface, it is less vulnerable to damage during cultivation or weeding. Water use can be managed to be very efficient with SDI because irrigations can avoid water losses to evaporation, runoff, and wetting the soil below the root zone.

Agricultural chemicals can be used more efficiently with drip irrigation. Since only the crop root zone is irrigated, nitrogen already in the soil is less subject to leaching losses. Fertilizer N that is added can be used more efficiently. Where insecticides are labelled for application through drip irrigation, less insecticide may be required to control pests.

With all the potential benefits of drip irrigation, conversion to drip irrigation can increase production costs, especially where another pre-existing irrigation system is already in place. Ultimately, there must be an economic advantage to the growers for them to consider drip irrigation.

Advantages of drip irrigation

1. Drip is adaptable to fields with odd shapes or uneven topography. Drip irrigation can work well where other irrigation systems are inefficient because parts of the field have excessive infiltration, water puddling, or runoff.

2. Drip irrigation can be helpful if water is scarce or expensive. Drip irrigation has become common where water is very scarce or where water is very expensive to pump. Precise water application is possible with drip irrigation. Irrigation with drip can be more efficient because evaporation is reduced, runoff is reduced or eliminated, deep percolation is reduced, and irrigation uniformity is improved so it is no longer necessary to "over water" parts of a field to adequately irrigate the more difficult parts.

3. Precise application of nutrients is possible using drip irrigation. Fertilizer costs and nitrate losses can be reduced. Nutrient applications can be better timed to plants' needs.

4. Drip irrigation systems can be designed and managed so that the wheel rows are sufficiently dry so that tractor operations can occur at any time at the convenience of the producer. Timely applications of herbicides, insecticides, and fungicides is possible.

5. Proven yield and crop quality responses to drip irrigation have been observed in onion, broccoli, cauliflower, lettuce, melon, tomato.

6. A drip irrigation system can be automated.

Disadvantages of drip irrigation

1. Drip irrigation systems typically cost $500 to $1,200 per acre. Part of the system cost is a capital investment useful for several years and part of the cost is annual. Systems can easily be over designed. Growers without experience may want to start with a relatively simple system on a modest acreage and gain experience.

2. Drip tape has to be managed to avoid leaking or plugging. Drip emitters can easily be plugged by silt or other particles not filtered out of the irrigation water. Emitter plugging also occurs by algae growing in the tape and chemical deposits at the emitter. Tape depth will

have to be carefully chosen for compatibility with other operations such as cultivation and weeding.

3. The weed control program may need to be redesigned. Compatibility with weed control programs can be a problem if herbicides need rainfall or sprinkler irrigation for activation. But, drip irrigation can enhance weed control by keeping much of the soil surface dry.

4. Drip tape disposal or reuse needs to be planned and will cause extra clean up costs after harvest.

Information source:

http://www.cropinfo.net/drip.htm