

The Benefits of Sub-Surface Row Crop Drip Irrigation



Row Crop Drip Irrigation

Benefits

Challenges

- The economic benefits of sub-surface drip irrigation
- The environmental benefits of SDI
- The Social benefits of SDI
- Why SDI makes the most sense
- How to put more money in you pocket

Benefits

Maximize Yield and Quality

- Maintain optimum soil moisture
- Maintain optimum soil nutrient levels
- Maintain optimum soil aeration
- Less compaction
- Less disease problems
- Field access for pesticide application
- Irrigation during harvest

Benefits

Water Application Efficiencies

- Drip 80-90%
- Sprinklers 70-80%
 - Spray losses from 6% to 20%
 - Evaporation from soil and plant surfaces
- Furrow and Flood 50-60%
 - Runoff
 - Deep percolation
 - Evaporation

Fertilizer Savings

- Controlled application
- Spoon feed directly to root zone
- Less lost to deep leaching
- Less lost to weed growth
- Eliminate runoff
- Timely application based on plant physiology

Benefits

Energy Savings

- Fertilizer savings
- Low system pressure
- Less cultivation trips
- No side dressing trips
- Less herbicides
- Harvesting efficiencies

Tolerance to Salinity

- Maintain optimum moisture levels in soil
- High frequency irrigation, enough pure water to overcome salt levels
- Moves salts away from plant root zone

Benefits

Difficult terrain

- Undulating
- Moderate - Severely sloping
- Irregular shapes
- Meandering rivers and streams

Difficult soils

- Sandy
- Tight clay
- Shallow
- Varying soil depths
- Varying soil structure
- Varying soil depths

Benefits

Labor Savings

- Lower flows more acres
- Easily automated
- Less cultivation
- Elimination of side dress fertilizer applications
- Uniform ripening

Less worker injuries

- Soil surfaces remain dry
- Bed preparation for subsequent crops
- Crops mature quicker

Benefits

Environmental

- No deep leaching of plant nutrients
- No run-off carrying pesticides and fertilizers
- Highest Water Use Efficiency (WUE)
- No overspray on non target surfaces

Energy savings

- Low pressure operation
- 25-40% less water
- 25-40% less fertilizer

Challenges

Up front capital investment
No deep tillage SSDI
Crop rotation
Burial depth

Germination potential
Tillage equipment
Harvesting operations
Rodents