

## *Centre Pivot Irrigation – Effluent Use*

### **Introduction**

Effluent use in irrigation is a means of wastewater disposal and a resource for economic development. The practice of applying effluent through centre pivots is quite common and effective.

A number of factors should be considered before attempting to apply effluent through centre pivots to fields:

- Quantity of solids;
- Water quality and corrosion potential; and
- Nutrient content.

### **Solids**

The size of solids will determine the sprinkler package that is used to eliminate nozzle plugging.

#### *Conventional Sprinklers*

- Used when no solids exist and plugging problems not evident.
- Flow control nozzles are available when the solids have the potential to plug regulators and nozzles.

#### *Impact Sprinklers*

- Able to handle some solids (smaller than smallest nozzle).
- Lower efficiency and uniformity.

#### *Big Guns*

- Capable of handling larger solids.
- Little treatment/filtration required.
- Mounted at towers (Slurry pivots).
- Require high operating pressure.
- Low efficiency and uniformity.

Big gun supply lines can be underslung from conventional centre pivots systems for two separate methods of irrigation (fresh water and effluent).



### **Quality and Corrosion Potential**

Effluent properties could accelerate corrosion potential and decrease system life.

- Effluent sample should be tested for potential corrosive properties (e.g. pH, EC, total dissolved salts, sodium, chlorides, sulfates, water hardness, alkalinity, etc).
- Different pivot construction materials should be considered to extend system life based on corrosion potential (e.g. galvanised, aluminum, stainless steel, underslung PVC, poly lined, etc).
- Management practices can be implemented that can increase system life (e.g. ensure drains are not blocked, periodic solid flushing, limit time that effluent is let sit static in pipes, etc)

### **Nutrient Content**

Analysis of effluent sample will determine nutrient content. Effluent should be applied so nutrients match water and nutrient requirement of crop.

Dilution of effluent with fresh water maybe required when nutrient concentration exceed crop requirement.