Improving Surface Irrigation to Reduce Costs.

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SISCO – surface irrigation optimisation

• Assess the performance of surface irrigation events
• Field measurements
• Impact of altering:
  • inflow rate
  • row length
  • duration of irrigation
Field measurements

• Speed water moves down the field
• Inflow rates
• Row length
• Field slope
• Furrow shape
Over irrigation – Application Efficiency = 55%

- 500m
- 0.5 L/s
- 36 hours
- Blocked end
- 90 mm applied
- 50 mm stored
- 40 mm lost

Amount required to fill profile

Excess water lost to deep drainage
Improved irrigation – Application Efficiency = 81%

- 500m
- 0.5 L/s
- 24 hours
- Blocked end
- 60 mm applied
- 49 mm stored
- 11 mm lost

Amount required to fill profile

Excess water lost to deep drainage

Region under irrigated
Improved irrigation – Application Efficiency = 80%

- 500m
- 1.1 L/s
- 12 hours
- Blocked end
- 62 mm applied
- 50 mm stored
- 12 mm lost

Amount required to fill profile

Region under irrigated

Excess water lost to deep drainage
SISCO – surface irrigation optimisation

Analyse the information to determine:
  • amount infiltrated into the soil
  • losses to runoff and deep drainage
  • opportunities to improve

Assess potential for savings
  • Water costs – total amount of water applied
  • Energy costs for pumping
Furrow Irrigation – reducing irrigation time & volume

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of Irrigations</td>
<td>21</td>
</tr>
<tr>
<td>Irrigation duration (h)</td>
<td>18</td>
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<td>Inflow rate (L/s)</td>
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<tr>
<td>Total Applied Irrig (ML/ha)</td>
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<td>Cane Yield (t/ha)</td>
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<tr>
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- Ratoon crop
- Heavy clay soil
- Slope ~ 0.3%
- Surface water supply
Furrow Irrigation – reducing irrigation time & volume

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## Ecomonomics

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Will only increase!!