Drip lateral burying process & furrowing, bed preparation and germination

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Yoram Krontal
Soil Type:
Heavy
Medium
Sandy

Furrowing
Planting
Covering
Key Factors for Project Success

Tree crop
- Installation: 20%
- Irrigation & fertigation management: 80%

Sugar Cane
- Installation: 80%
- Management: 20%
## On surface or sub surface drip line

<table>
<thead>
<tr>
<th>Factor</th>
<th>On surface</th>
<th>sub surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root intrusion</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Wall thickness</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Row length</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Visual system function</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Manpower to retrieve</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Rodents</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Resume irrigation</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Spare parts (connectors)</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Saline soil</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Visual</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Water distribution</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
• Order of installation: Sub-main and then drip line, drip line and then sub-main
• Time from burying to irrigation, no more than 4 weeks
• Raisers and sub main trench covering
Furrowing + Manual Planting

One line -

Two line

Three line

Work output, Tractor size

Three - Iron beams:
- distance between burring kit – wings and depth control wheels
Peru – one line Furrowing

Bagamoyo Tanzania – one line Furrowing with 3 line option
Brazil 2 lines base fertilization deep furrowing
South Africa
Brazil – 3 lines
Use of Planting Machine –
Semi Automatic
Fully Automatic

- Drip burying prior to furrow & planting
  - Time from burying to planting
  - Avoid damage to the drip line on planting (GPS)
- Drip burying at the same operation
  - Modification in the planting machine
  - Time to start irrigation
- Drip burying after planting
  - Avoid damage to the seeds (GPS)
  - Time to start irrigation
Maple Peru – Only 3 lines drip burying, furrowing at second stage
Maple Peru – Stage 2: Planting using GPS
(the system is pressurized and germination start the same day)
Fully automated planting
Harvest for seed – Direct from the field
No nursery
No seed treatment
From the harvester directly to the planting machine
Seed depth

Ridge height

Relation between the seed and the drip lateral

Soil natural surface

After covering bed high about 5 cm

10 - 15 cm

15 - 20 cm

40 cm
Quality of Planting

Nursery – available seed material:
1. Time from harvest to planting
2. Seed treatment
Planting quality

Dual row 0.4 x 1.4m

- Number of buds for 1m = 9 min to 13 max (depend on the planting methods and germination rate) for germination of 9 buds per m
- Number of buds per ha = 100,000 to 130,000
- Number of buds per m² = 10 - 13
- Seed quantity = 8 to 12 ton/ha

Variation:
- Variety characteristics
- Climate and soil type
Quantity of seeds
Heavy Soil: avoiding clods
Covering implements

- Depth control
- Compact roll
No
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Beds formation:
Factor to consider:
- Mechanical Harvest
- Drainage and infiltration rate
- Sandy soil – wind damage
- Salinity – accumulation of salts
Covering & ridge height in different soils
Thank you