Green Cane Trash Blanketing (GCTB)

- Cane harvested green
- Trash spread by the harvester over the field at harvesting
- The trash layer acts as a ‘blanket’ to retain moisture, protect soil and control weeds
- Trash blanket usually consists of 8-15 tonnes/ha of organic material
85% of Queensland crop is harvested green

Burdekin is the exception:
- soil, harvesting conditions and irrigation practices limit its applicability

Return of material to soil surface has important benefits:
- agronomic
- environmental
- financial
- social
## Benefits of GCTB

<table>
<thead>
<tr>
<th>Factor</th>
<th>Comparison to the traditional burnt cane system</th>
<th>Benefit</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td><strong>Agronomic</strong></td>
<td></td>
<td>Increased resources</td>
<td>Improved soil moisture content</td>
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<td>Improved nutrient availability</td>
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<td>Improved conditions</td>
<td>Improved soil structure</td>
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<td>Better water infiltration</td>
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<td>Reduced losses</td>
<td>Less soil erosion</td>
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<td><strong>Economic</strong></td>
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<td>Cost savings</td>
<td>Less chemicals</td>
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<td>Less machinery and labour</td>
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<td>Increased water use efficiency</td>
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<td><strong>Environmental</strong></td>
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<td>Improved conditions</td>
<td>Reduced smoke</td>
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<td>Reduce ash fallout</td>
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<td><strong>Social</strong></td>
<td></td>
<td>Improved conditions</td>
<td>Improved WH&amp;S</td>
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<td>Decreased workload</td>
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<td>Improved lifestyle</td>
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</table>
Factors affecting implementation of GCTB in some areas (eg Burdekin)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
<th>Challenge</th>
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<tbody>
<tr>
<td>Large amounts of trash, especially with some varieties</td>
<td>High levels of extraneous matter supplied to the mill</td>
<td>Amount of material passing through the mill</td>
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<td>Reduced milling efficiency</td>
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<td>High levels of trash in cane paddocks especially with long rows</td>
<td>Difficulty with flood irrigation</td>
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<td>Risk of accidental trash fires</td>
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<td>Soil types</td>
<td>Increased moisture in low-lying areas and in soils susceptible to water-logging</td>
<td>Yield loss</td>
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<td>Poor re-growth*</td>
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</tbody>
</table>

* Can be related to low soil temperature under the trash blanket in some areas
Burning trash blankets

- Burning a trash blanket is discouraged
  - However, it is sometimes used to enable the replant of sugarcane shortly after harvest of the last ratoon of the previous crop cycle
  - The use of fallows or break crops should result in this practice being eliminated
  - Burning trash blanket negates the benefits
Advantages of GCTB

- Trash blankets preserve soil moisture
- Less irrigation water is required
- Reductions in soil erosion under trash blankets
- Reduced weed growth under blankets
- Less herbicides needed
- Less labour and machinery hours
- Eliminates dangerous fire situations
- Reduction in grub damage
- Flexible harvesting plan
Disadvantages of GCTB in some areas

- **Irrigation problems**
  - Trash blanket interferes with flow of water through furrows
  - Unable to see advance of irrigation water

- **Slow ratooning**
  - Caused by waterlogging from first irrigation after harvest especially on heavy clay soils
  - This could be overcome by reducing drying off time before harvest so crop starts to ratoon without an irrigation straight after harvest
  - Lower temperatures under the trash blanket can also be a factor in some cases (eg NSW, parts of the southern Queensland)
Disadvantages of GCTB cont...

- **Investment in new machinery**
  - A switch to growing cane under GCTB can involve a relatively large investments of new machinery

- **Fertilising difficulties**
  - Different fertiliser strategies (ie applying fertiliser below the trash blanket) will need to be used, including new machinery

- **Fire risk**
  - There is a risk of trash fires especially during dry periods
Disadvantages of GCTB cont...

- **Weed control**
  - Although trash blankets suppress weed germination, weed control (eg vines) can be a problem in some circumstances under trash blankets – alternative weed management strategies need to be used in such cases
  - Different machinery (eg high-rise spray rigs) needed to combat weeds

- **Harvesting**
  - Uneven gathering and feeding or large lodged green crops can choke the feeding mechanisms of the harvester
Growers perspective

- Burnt cane system to GCTB
  - Changed in 1980
  - Burnt cane system was too labour intensive and expensive
  - Harvesting burnt cane held risks of losing cane
  - Aim was to investigate the transition without possible loss to productivity or profitability
Growers Perspective cont...

- Tom implemented GCTB by:
  - Farm experimentation and trials to gain confidence and knowledge to apply to majority of farm over time
  - Adoption of a flexible system by 1990
  - Fire used as a management tool only as less people skilled in burning cane

- Outcomes
  - Slight loss in productivity but net profit has increased
  - 98% cane is harvested green
Conclusion

- GCTB can provide advantages:
  - Cost benefits
  - Agronomic and harvesting practices
  - Environmental /social factors
- Some disadvantages, but these can be managed in most circumstances
- Questions/discussion

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