

Green Cane Harvesting - The Australian Experience

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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



GCTB *cont...*

- 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

Factor	Comparison to the traditional burnt cane system	
	Benefit	Examples
Agronomic	Increased resources	Improved soil moisture content Improved nutrient availability
	Improved conditions	Improved soil structure Better water infiltration
	Reduced losses	Less soil erosion
Economic	Cost savings	Less chemicals Less machinery and labour Increased water use efficiency
Environmental	Improved conditions	Reduced smoke Reduce ash fallout
Social	Improved conditions	Improved WH&S Decreased workload Improved lifestyle

Factors affecting implementation of GCTB in some areas (eg Burdekin)

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

* 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

