

# Healthy Country

managing the land for healthy waterways

Living mulch factsheet #2

**FarmFLOW**  
growth through good practice

## Living mulch: Disease and erosion research

Cropping soils are at their most vulnerable from the bed-forming and planting stage until canopy closure of the inter-row space. One of the main issues associated with pineapple production is the loss of soil and sediment off-site in runoff water. Linked to this is the loss of nutrients, herbicides and pesticides to the surrounding waterways.

Previous research clearly shows that soil losses are higher in the first 10 to 12 months when the inter-row surface is exposed to rainfall. Growers have indicated that top soil erosion should reduce once canopy closure protects the inter-row space from raindrop impact.

### Questions that need answers

- Does living mulch have the ability to reduce topsoil erosion? If so, by how much?
- How cost effective is using living mulch compared with standard practice?
- Does canopy closure effectively reduce the erosion process?

### Trial setup

- Feed oats seed was planted in the inter-row at a rate of 50-60 kg/ha as the living mulch crop for both trials and sprayed out using Verdict 520, Viking, Fusilade and a wetting agent (Uptake) using a boom spray.
- The standard practice plot retained bare ground between rows.



Soil loss from fields with living mulch was up to 78% less than from fields under standard management practice.

### How did the living mulch perform?

- The first sampling period at Toorbul showed 90% more soil loss in the standard practice compared to the living mulch practice.
- Erosion was still much higher in the standard practice even after the crop canopy had closed over the inter-row space.
- The first sampling period at Elimbah (on a lower slope) had similar results to Toorbul where sediment loss was 39% higher in the plot where the inter-row space was left bare.
- Inter-row living mulch significantly reduced erosion and plant bed heights were maintained.
- Oats suppress weed growth, reducing the amount of herbicide required.

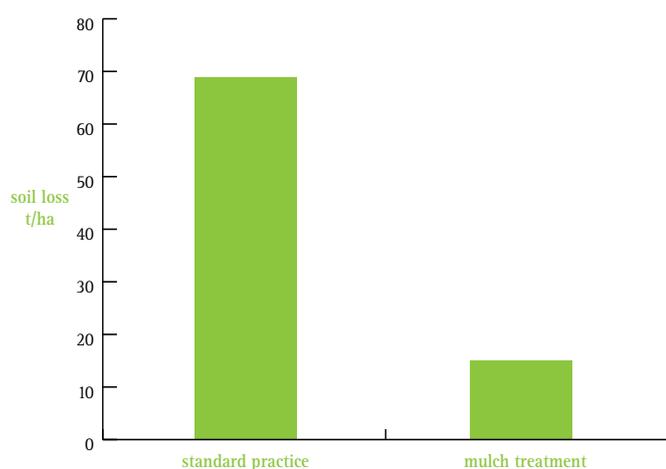
**Other Living Mulch fact sheets:** #1 What is living mulch?  
#3 Establishment

Healthy Country partners:



**Table 1** – Soil loss at Toorbul and Elimbah sites

Farm	Sample period (from planting)	Soil loss (t/ha)		Difference %	Total rainfall (mL)
		Standard practice	Living mulch		
Toorbul	17 mths	68.7	14.7	78.5	1005
Elimbah	3 mths	1.2	0.7	38.7	69



**Figure 1** – Living mulch trial results

The major user of living mulch in the Pumicestone catchment noted “it was clear early in the piece that there were big differences” in soil lost between the trial blocks, and that there was “no noticeable difference in yield” between living mulch and standard blocks for this summers’ pick.

## Living mulch – Is it worth it?

Comparison of weed control costs for standard practice and for living mulch after bed formation and planting.

**Table 2** – Comparing costs of inter-row management

Standard practice	\$/ha	Living mulch	\$/ha
Hyvar 5 kg/ha	275	Oats 50 kg/ha	60
Diuron 7 L/ha	53	<i>To spray off Oats at 8 weeks</i>	
Diuron + 3.5 L/ha	27	Diuron 3.5 L/ha	27
		Viking 5 L/ha	65
		Fusilade 0.6 L/ha	120
		Wetting agent 0.5 L/ha	15
<b>Total</b>	<b>\$355</b>	<b>Total</b>	<b>\$287</b>

## Cost benefits of using living mulch

- No obvious effect on crop yield or quality.
- Using living mulch is cost-neutral because the cost of pre-plant herbicides (e.g. Bromacil, Diuron) is offset by the cost of establishing the living mulch.
- Use of living mulch reduces the overall amount of Diuron applied by two-thirds. Diuron is currently under review and there may be restrictions put on application rates.
- To eliminate an extra tractor pass, the seed can be sown when rolling in pineapple tops after planting. Tractor speed is best at 5 km/hr to sow seed. Seating pineapple tops takes 4.5 hours/ha.

## For more information

Contact DPI&F Project Officer – Zane Nicholls  
(07) 5444 9677 zane.nicholls@dpi.qld.gov.au

## Acknowledgements

Pineforce Pty Ltd, Forster Bros Farming Co, Fullerton Farms, Bethonga Pines Pty Ltd., PRCCA, Golden Circle, Forestry Plantations Qld.

The Healthy Country Project is a three-year partnership project between SEQ Catchments, DPI&F, scientists from Healthy Waterways and indigenous representation through the SEQ Traditional Owners Alliance. The other project partners are coordinating river restoration works and water quality monitoring in three ‘focal’ case study areas in the Lockyer, Bremer and Logan-Albert catchments.

FF08-003