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## Hydrothermal and chemical weed control trial

**Aim:** To compare the effectiveness of various weed control treatments and their costs for the City of Joondalup.

**Target area:** Roadside curb and footpath only.

**Weed control treatments:** 1) Hydrothermal treatment applied 3 times in one year (May, August and November). 2) Hydrothermal applied at 1 time in the year (May) + glyphosate applied in August, 3) glyphosate only, applied in May and August, 4) glyphosate + stomp applied in May only and 5) unsprayed / untreated control (see table for further explanation).

Treatment	May	August	November
1) Hydrothermal	✓	✓	✓
2) Hydrothermal + Glyphosate	✓	✓	
3) Glyphosate	✓	✓	
4) Glyphosate + Stomp	✓		
5) Unsprayed control			

### **Treatment replicates:**

*Within street replication:* Each treatment would occur 4 times within a street over a distance of 1 km made up of 4 equal parts of 250m. In other words each treatment will occur over a total length of 1 km in each street, requiring 5 km of street frontage for all treatments.

*Between street replication:* The above will occur in 4 separate streets which are also located in 4 different suburbs.

*Note: replication (duplicates) is required to make valid statistical comparisons.*

### **Steps and time lines involved:**

- 1) Select 4 suitable streets, each with at least 5 km of street frontage and with a reasonable representation of different weed types.
- 2) Mark out the areas of the street which will be subject to each of the 5 treatment.
- 3) Count or score the weeds in each of the selected treatment areas.
- 4) Apply weed control treatments after first autumn germination (e.g. May), and record conditions, rates applied, pressures and temperatures.
- 5) In August, count or score weed populations and apply second round of treatments. For example the hydrothermal treatment, hydrothermal + glyphosate treatment and glyphosate treatment all have second application times as part of their treatment.
- 6) In early November, count or score weed populations and apply the third round of treatments (Hydrothermal only).
- 7) In February 2009, complete the last weed count or score.
- 8) Statistically analyse results.

9) Complete the report on effectiveness of weed control and associated costs.

**Indicative design for explanatory purposes:** Note each treatment occurs 4 times in each of 4 streets.

Cook Av. Hillarys	Timberlane Dr. Woodvale	Naturaliste Bvd. Iluka	Candlewood Bvd. Currambine
Treatment	Treatment	Treatment	Treatment
Hyd - 1.1	Hyd - 1.1	Hyd - 1.1	Hyd - 1.1
Hyd + Gly - 2.1	Hyd + Gly - 2.1	Hyd + Gly - 2.1	Hyd + Gly - 2.1
Gly - 3.1	Gly - 3.1	Gly - 3.1	Gly - 3.1
Gly + Sto - 4.1	Gly + Sto - 4.1	Gly + Sto - 4.1	Gly + Sto - 4.1
Control - 5.1	Control - 5.1	Control - 5.1	Control - 5.1
Hyd - 1.2	Hyd - 1.2	Hyd - 1.2	Hyd - 1.2
Hyd + Gly - 2.2	Hyd + Gly - 2.2	Hyd + Gly - 2.2	Hyd + Gly - 2.2
Gly - 3.2	Gly - 3.2	Gly - 3.2	Gly - 3.2
Gly + Sto - 4.2	Gly + Sto - 4.2	Gly + Sto - 4.2	Gly + Sto - 4.2
Control - 5.2	Control - 5.2	Control - 5.2	Control - 5.2
Hyd - 1.3	Hyd - 1.3	Hyd - 1.3	Hyd - 1.3
Hyd + Gly - 2.3	Hyd + Gly - 2.3	Hyd + Gly - 2.3	Hyd + Gly - 2.3
Gly - 3.3	Gly - 3.3	Gly - 3.3	Gly - 3.3
Gly + Sto - 4.3	Gly + Sto - 4.3	Gly + Sto - 4.3	Gly + Sto - 4.3
Control - 5.3	Control - 5.3	Control - 5.3	Control - 5.3
Hyd - 1.4	Hyd - 1.4	Hyd - 1.4	Hyd - 1.4
Hyd + Gly - 2.4	Hyd + Gly - 2.4	Hyd + Gly - 2.4	Hyd + Gly - 2.4
Gly - 3.4	Gly - 3.4	Gly - 3.4	Gly - 3.4
Gly + Sto - 4.4	Gly + Sto - 4.4	Gly + Sto - 4.4	Gly + Sto - 4.4
Control - 5.4	Control - 5.4	Control - 5.4	Control - 5.4

Note: Each of the cells above is a 250 m strip (suggested length only), hence hydrothermal 1.1 in Cook Av. is a 250 m strip of footpath and road side curb, and in the same street 1.2, 1.3 and 1.4 is the same hydrothermal treatment each 250 m in length.

John Banks and Graeme Sandral

11<sup>th</sup> Jan 2008