

EFFECT OF SOIL AND SOIL SUBSTITUTES ON HERBICIDE EFFICIENCY

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As part of a rehabilitation program at its Port Kembla steelworks, BHP has developed a substitute for soil, based on coal washery refuse, slag and digested sewage sludge. The effectiveness of herbicides used to control weeds in landscaped areas where BHP Soil Mix was used may be affected by the presence of carbon in the coal washery refuse.

An experiment was carried out to test the effectiveness of various herbicides on plants grown in BHP Soil Mix, coal washery refuse and sandy loam (Toth and Milham 1975, Toth *et al.* 1987).

METHODS

Sandy loam, BHP Soil Mix and coal washery refuse were used. After sowing and herbicide application, pots were watered and automatically maintained slightly above field capacity by wick watering method (Toth *et al.* 1988). Tomato and Japanese millet were used as a test crop. Aqueous suspensions of two herbicides at increasing rates were used.

Sencor[®] (metribuzin) at 0, 0.25, 0.5, 0.75, 1.00, 1.50 and 2.00 kg ha⁻¹ and treflan[®] (trifluralin) at 0, 0.5, 0.75, 1.00, 1.50 and 2.00 kg ha⁻¹.

RESULTS AND DISCUSSION

The results suggest that coal washery refuse is responsible for the absorption of large amounts of herbicide. Its use in BHP Soil Mix means that, to achieve good weed control, two to three times the amount of herbicide is required, compared with sandy loam.

REFERENCES

- Toth, J. and Milham, P.J. (1975). *Weed Research* 15, 171-6.
 Toth, J. , Milham, P.J., Hillier, G.R. and Kaldor, C.J. (1987). *Weed Research* 27, 367-76.
 Toth, J. , Nurthen, E.J. and Chan, K.Y. (1988). *Australian Journal of Experimental Agriculture* 28, 805-8.

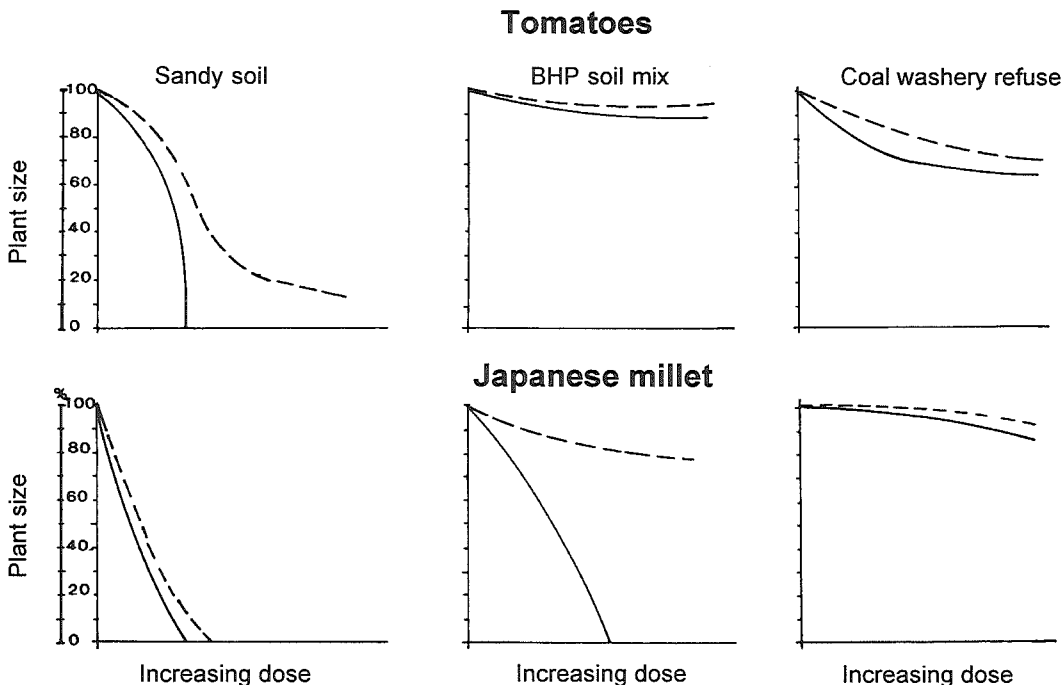


Figure 1. Reduction of plant size with increasing herbicide rate. Treflan[®] (---) and Sencor[®] (—).