

## ENVIRONMENTAL FACTORS INFLUENCE EFFICACY OF GLYPHOSATE APPLIED TO WILD OAT (*AVENA FATUA*)

S. Tantipat and S.W. Adkins

Department of Agriculture, The University of Queensland, St Lucia Q 4072, Australia

Glyphosate activity is affected by weather conditions before and after application and it is generally agreed that environmental conditions that promote growth will increase efficacy. The objective of this series of glasshouse experiments was to examine the efficacy of glyphosate against *Echinochloa colona*, a summer weed of south east Queensland, grown under different soil moisture, light and temperature regimes.

Pre-germinated seeds were grown under uniform conditions until they were 10 days old and then kept in either wet (-0.1 MPa, field capacity) or dry (-1.3 MPa, visible plant wilting) soil conditions for 3 weeks before glyphosate (180 to 360 g ha<sup>-1</sup>) was applied. Light intensity did not influence the time it took the plants to die but visual damage was faster under full sunlight than 50% shading (ca. 500  $\mu\text{mol m}^{-2} \text{s}^{-1}$ ). Moisture stress reduced the level of glyphosate control, reduced physical damage and delayed mortality being the most obvious changes. Temperature also influenced efficacy, and level of control was dependent on an interaction of soil moisture level with temperature. Better control was possible on plants growing under well watered conditions at low temperatures (20°C) compared to plants growing under moisture stress at high temperatures (35°C).

Soil moisture level and air temperature and to a lesser extent light intensity all have an important influence on the glyphosate efficiency on banyard grass with soil moisture level being the most important factor.

## RUBBER VINE RUST, *MARAVALIA CRYPTOSTEGIAE*, A POTENTIAL BIOCONTROL AGENT FOR RUBBER VINE, *CRYPTOSTEGIA GRANDIFLORA*

A.J. Tomley

Alan Fletcher Research Station, Queensland Department of Lands,  
PO Box 36, Sherwood Q 4075, Australia

The rust fungus *Maravalia cryptostegiae*, from Madagascar is seen as the single most damaging parasite of rubber vine (*Cryptostegia grandiflora*), a serious weed of rangeland and native plant communities in northern and central Queensland.

Studies of the rust's taxonomy, biology and host specificity were carried out in the United Kingdom from 1985 to 1992 to determine its suitability as a biocontrol agent. The results of this work clearly confirm that it is suitable.

These results together with a recommendation that the rust be imported and released in the field in Australia were lodged with the Australian Quarantine and Inspection Service in mid-1992. Subsequent to approval being granted, the rust was released in the field in late summer 1993. Various aspects of the project are illustrated.