

Competitiveness of toad rush in wheat

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Toad Rush (*Juncus bufonius*) has received scant recognition as a weed of cereals in Victoria. Velthuis and Amor (1) showed that toad rush had the highest relative abundance of all weeds in three of four Victorian cropping regions and record a lack of information on its competitiveness. In south west Victoria toad rush occurred in 64% of cereal fields at average density of 248 plants m⁻².

Many cereal farmers in North East Victoria regard toad rush as one of their worst weeds, whilst others believe that it is not competitive but simply colonizes areas already weakened by waterlogging. Hill (2) reported that its incidence is worst on poorly structured acid soils and increases with higher rainfall and waterlogging. Its competitiveness was frequently underestimated because of its innocuous appearance.

This paper reports early results of experiments designed to obtain data on the competitiveness of toad rush.

Methods

Four replicated trials were established on wheat with moderate infestations of toad rush. Sites 1-3 were on red-brown earths near Yarrawonga and site 4 on a transitional soil near Benalla. A standard herbicide treatment with terbutryne ("Igran") at 850 ml ha⁻¹ product was included in all trials and applied on 15/7/83 when toad rush was at the 2-3 leaf stage and crops at early tillering. Weed densities were counted several days later, and weed control was rated on 16/8/83 using the EWRC scale. Grain yield were determined from hand harvested samples.

Discussion and Results

Soil type	Red-brown earths			Transitional
	1	2	3	4
Site No.	1	2	3	4
Toad rush density (plants m ⁻²)	6600	5800	4800	3550
Toad rush control (EWRC score)	1.6	1.75	3.7	2.75
Yields : no treatment	2.67	5.39	3.72	2.13
(t ha ⁻¹) Igran 850 ml ha ⁻¹	3.48	5.27	3.97	2.84
Yield increase (%)	30.3	-2.2	6.7	33.3
Significance	*	NS	NS	*

July-September rainfall on Sites 1-3 was 40% above average inducing moderate waterlogging, and toad rush densities were much greater than usually reported. A yield response of 30% due to spraying ($P < 0.05$) occurred in Site 1 only. No other weeds occurred in significant densities. The site on transitional soil experienced July-September rainfall 60% above average and was very waterlogged. A 33% wheat yield increase ($P < 0.05$) resulted from control of toad rush. Unreplicated trials on a similar soil which also experienced severe waterlogging (July-September rainfall 80% above average) showed 54 and 74% wheat yield increases from poor toad rush control (EWRC scores 6-7) from mid-September herbicide application.

It was observed that denser crops at Sites 2 and 3 shaded out toad rush in spring. Results indicated that high densities of toad rush are likely to be a problem in lighter crops on red-brown earths even where waterlogging is not a major problem. Yield losses are most likely to be significant on transitional soils with lighter infestations and where waterlogging or other factors reduce crop vigour. However the occurrence of substantial yield increases from toad rush control on waterlogged sites suggested that it is a cause rather than a consequence of yield loss.

1. Velthuis R.G. and Amor R.L. 1982 Australian Weeds 2 (2) 50-52

2. Hill R.D. 1983. Australian Seed Science Newsletter No. 9, 66-71