PATERSON'S CURSE - A USEFUL PASTURE SPECIES?

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Paterson's curse (*Echium plantagineum*) is a widespread and often dominant species in the annual pasture belt of southern Australia. There has been considerable conflict whether it is a weed or useful pasture plant. However, opinions have been subjective because there were no critical studies on its ecology or weed status. Recent research has shown it is relatively persistent, productive, and nutritious when compared with subterranean clover (*Trifolium subterraneum*).

Germination of Paterson's curse, tested under constant and alternating temperatures from 17-32°C, generally remained around 40%, with some depression to 20% at 17°C constant. Sub. clover gave an 80-90% germination at temperatures below 27/17°C, but germination was depressed to 0-10% above 27/22°C. Such temperature control was evident in the field in southern New South Wales in 1969, where 59% of the year's total germination of Paterson's curse seedlings and a lower 32% of sub. clover emerged after rainfalls in the warm months of January and February, before the true autumn break. These early-emerging seedlings of Paterson's curse showed a higher survival rate (57%) during severe moisture stress in late summer/early autumn (18 February - 24 March 1971) than sub. clover (10% survival). Thus, many Paterson's curse seedlings are well established before the bulk of sub.clover becomes established, especially in years with early or 'false' autumn breaks, and are at an advantage during subsequent growth.

Persistence of Paterson's curse is enhanced because seed production is high. Measurements showed seed productions of 19 000 and 30 000 seeds/m^2 in a grazed pasture and ungrazed waste area respectively in southern New South Wales. Subterranean clover at these sites produced 16 000 and 200 seeds/m^2. Paterson's curse seed retains viability for a long period and well-established dormancy enables a single seed crop to germinate sporadically over several years. Seed collected near Albury in February 1969 showed a 9% germination initially, and after 5½ years' storage in a laboratory still showed an 18% germination. In a field trial at Frankston, seed collected and sown in January 1970 gave the following emergence:

Summer 1970	Autumn 1970	Winter 1970	Spring 1970	Summer 1970/71	Autumn 1971	Winter 1971	Autumn 1972
12%	9%	0%	1%	5%	2%	0%	