

# Finding a persistent phalaris for the North West Slopes

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Grazing enterprises on the North West Slopes are characterised by low stocking rates and low rates of pasture improvement (Lodge *et al.* 1991). Temperate perennial grasses are needed in this comparatively hot region for their high herbage quality and productivity in the cooler months. Persistent perennial grasses are also urgently needed to restore overcropped and eroded soils. Phalaris has proven to be the best adapted of the introduced temperate perennial grasses. However, productive stands often do not persist beyond 4-5 years (Lodge 1997). Short stand life in this region may be due to sensitivity to grazing or insufficient summer dormancy. On the other hand, unnecessarily high dormancy results in lost production in an environment that experiences considerable summer rainfall. This paper reports on a collaborative project between the CSIRO phalaris breeding program and NSW Agriculture to assess a wide range of phalaris lines on the North West Slopes for persistence under the combined stress of grazing and the environment.

## Methods

A total of 102 wild accessions, breeding lines and cultivars was sown in trials located at Purlewaugh, Tamworth and west of Manilla. The lines were sown during autumn 1998 in 0.5 m x 2 m plots arranged as a row-column design with 3 replicates at each site. Sites were not cut or grazed until February 1999. Data collected include establishment density and seedling yield, days to flowering at Tamworth and summer dormancy following significant rainfall (33 mm) during January and February. Autumn and winter yield in the second year and persistence as 'presence in a grid' will be measured until 2001.

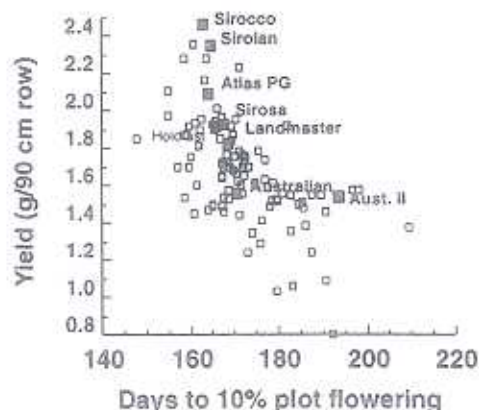


Figure 1. Seedling yield and flowering date of wild selections, breeding lines and cultivars of phalaris at Tamworth.

## Results and Discussion

Above-average rainfall from autumn to spring in 1998 resulted in excellent establishment, including the majority of the wild accessions. Wide diversity among the lines was reflected in the range of seedling vigour and flowering dates (Figure 1), increasing the chances of breeding a more persistent phalaris suited to the North West Slopes. A number of Moroccan accessions with high vigour and early flowering will be of interest. Sirolan and a new summer-dormant cultivar, Atlas PG, also displayed high seedling vigour. The grazing tolerance of Sirolan is suspect and it will therefore be interesting to see how it and other lines with high vigour persist under grazing pressure at economic stocking rates.

## Acknowledgment

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## References

Lodge G.M. (1997). Grazing strategies to increase persistence of

*Phalaris aquatica* L. in summer rainfall areas of temperate Australia. Proceedings of the XVIII International Grassland Congress, Vol. 2, Section 22, pp. 111-12.

Lodge, G.M., McCormick, L.H. and Dadd, C.P. (1991). A survey of graziers and pasture management practices on the Northern Slopes of New South Wales. *NSW Agriculture Technical Bulletin* 43.