

## Weed survey of the perennial pasture zone of New South Wales

J. Dellow, G. Wilson, W. King and B. Auld

*NSW Agriculture, Orange Agricultural Research Station and CRC Weed Management Systems*

In spring 1999 a vegetation survey was conducted of the Perennial Pasture Zone (PPZ) of NSW. The PPZ includes the Tablelands and near Western Slopes (600 mm isohyet) running north-south a distance of 1,000 km from Queensland to Victoria. It covers 7M hectares and accounts for nearly half of the sheep and cattle production of NSW. The aim of the survey was to obtain a region-wide assessment of the threat to pasture production posed by weeds. The lack of objective data has limited the capacity to accurately assess the significance of weed impacts and consequently the ability to identify weed management priorities. The survey visited 142 random sites within the PPZ involving 15,000 km travelling.

**Table 1. Most frequent weeds**

Botanical Name	Common Name	Paddock frequency (%)	Mean contribution to biomass (%)
<i>Vulpia</i> spp.	Vulpia	88	15
<i>Bromus molliformis</i>	Soft brome	85	6.5
<i>Hypochaeris radicata</i>	Catsear	71	3.0
<i>Lolium rigidum</i>	Annual ryegrass	53	7.2
<i>Hordeum</i> spp.	Barley grass	40	6.2
<i>Cirsium vulgare</i>	Spear thistle	36	0.4
<i>Carthamus lanatus</i>	Saffron thistle	21	3.2
<i>Echium plantagineum</i>	Paterson's curse	17	3.2
<i>Arctotheca calendula</i>	Capeweed	15	1.6
<i>Silybum marianum</i>	Variegated thistle	8.5	6.1
<i>Onopordum</i> spp.	Scotch thistle	7.0	3.0
<i>Eragrostis curvula</i>	African lovegrass	5.6	12
<i>Hypericum perforatum</i>	St. John's wort	5.6	3.6

### Summary of results

- A total of 176 taxa were identified
- Annual grass species such as *Vulpia* and soft brome were the biggest weedy threat to production.
- Less than 10% of paddocks surveyed had the 50% "improved" perennial species considered desirable for maximum livestock production.
- The most common broadleaf species were subterranean clover and catsear. Catsear was present in 71% of paddocks; it is a plant avidly selected by grazing sheep and contributes to quality forage (17.6% crude protein).
- On average a third of the pasture biomass was perennial grasses; "improved" species accounted for 25% of the biomass. The most commonly occurring "improved" grass species included phalaris, white clover, cocksfoot, perennial ryegrass and tall fescue.

### Conclusion

The abundance and widespread distribution of annual grasses is of major concern, constituting on average 25% of pasture biomass; in some instances as high as 80% of paddock biomass. This level of abundance has an estimated opportunity cost of about \$30 per hectare - representing a total loss of more than \$200M to the NSW pastoral industry. Low-cost pasture management technologies that limit the abundance of annual grasses do exist. Their adoption needs to be promoted within an integrated management strategy. "Sleeper"

weeds (weeds occurring at low frequencies in this survey but significant problems elsewhere) such as bent grass, coolatai grass, chilean needle grass, serrated tussock and african lovegrass are also of concern

It is planned to revisit and survey a reduced number of the sites both in autumn and spring in 2001.