

## Establishing phalaris in the upper hunter by aerial seeding

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There is enormous potential for improving pasture production and profitability of livestock enterprises in the Upper Hunter Region of NSW by aerial establishment of phalaris-based pastures. Little is known about aerial establishment of improved grasses into the major native pasture associations of the Upper Hunter, namely Pea tussock (*Poa labillardieri*) climax and wiregrass (*Aristida ramosa*) dominant rangeland. In two trials the effect of pre-sowing management and simulated aerial seeding into Poa tussock and wiregrass pastures was examined.

### Methods

Two trials were established in thick Poa tussock and dense wiregrass 20 km N.E. and 35 km E of Scone respectively. The trials were split plots with three blocks. Main plots were pre-sowing management strategies - spring burning (flame thrower, 20-27/9/84), autumn burning (8-16/5/85), autumn cutting (sickle bar mower, 10-11/4/85) and untreated. Sub-plots were spray-sow management strategies - 1.08 kg ha glyphosate (G), no herbicide (N) and no herbicide + extra phalaris seed (N+). Sirosa phalaris, Seaton Park sub clover, Haifa white cover and WL515 lucerne were sown by hand broadcast at 200 viable seed m<sup>-2</sup> for each species (600 viable seed phalaris m<sup>-2</sup> for N+ treatment). Plots were sprayed on 22/5/85 and sown on 18/6/85 except autumn burnt treatments which were sprayed (27/6) and sown (15/7) later due to the timing of autumn burning for bushfire safety.

### Results and Discussion

**Table 1. Plant density (PD) of phalaris seedlings (m<sup>-2</sup>) and visual scores (0-10, absence-abundance) of clover (C), weed (W) and annual grass (A)**

|                       | Autumn Burnt |     |     | Autumn cut |      |      | Untreated |     |     | Spring burnt |     |     | LSD<br>P=0.05 |
|-----------------------|--------------|-----|-----|------------|------|------|-----------|-----|-----|--------------|-----|-----|---------------|
|                       | G            | N   | N+  | G          | N    | N+   | G         | N   | N+  | G            | N   | N   |               |
| <u>In Poa tussock</u> |              |     |     |            |      |      |           |     |     |              |     |     |               |
| PD                    | 54           | 4   | 19  | 19         | 1    | 6    | 11        | 1   | 0   | 17           | 0   | 0   | 7.6           |
| C                     | 7.0          | 4.0 | 3.8 | 3.5        | 2.0  | 1.3  | 0.7       | 0   | 0   | 2.7          | 1.0 | 0.3 | 2.2           |
| W                     | 6.3          | 2.3 | 4.7 | 6.0        | 1.7  | 1.3  | 4.7       | 0.3 | 0.3 | 8.3          | 1.0 | 1.3 | 1.5           |
| <u>In wiregrass</u>   |              |     |     |            |      |      |           |     |     |              |     |     |               |
| PD                    | 15           | 0   | 0   | 0          | 0    | 0    | 13        | 0   | 0   | 0            | 0   | 0   | 5.3           |
| A                     | 1.7          | 9.0 | 8.7 | 10.0       | 10.0 | 10.0 | 7.7       | 9.3 | 9.3 | 6.3          | 9.3 | 9.3 | 2.2           |

Herbicide application was essential for good phalaris establishment (Table 1), extra seed was not a substitute. Retention of dead vertical and horizontal litter in sprayed untreated plots provided a favourable environment for phalaris to establish. These seedlings were larger than those from cleared treatments.

In Poa tussock, establishment was better following autumn burning than other pre-sowing management because the later sowing in the autumn burnt treatment coincided with higher soil moisture. However, satisfactory phalaris establishment was obtained with all pre-sowing strategies when herbicide was used. Removal of tussock by burning or cutting increased establishment of clovers and weeds.

In wiregrass, removal of the canopy by cutting or burning allowed annual grasses to dominate except where they were killed by the late spraying on autumn burnt treatments. It was essential that spraying with herbicide be timed to occur after germination of annual grasses unless there was residual litter to control competition.

