# Beyond the Benchmark: Early Indicators of Long-Term Rehabilitation Success Using Direct Seeding

Authors

Christopher Johnson, Matthew Thomson, Michael Vermeulen, Mark Waud, James McBroom, Ruby Michael

### Rationale

- Declining success rates and high costs of tubestock planting in post-mining rehabilitation.
- Direct seeding is underutilised in Queensland mine rehab due to concerns around reliability, weeds, and native grass success.

### Aim

Test whether direct seeding can meet Queensland PRCP criteria while reducing costs and supporting native biodiversity.

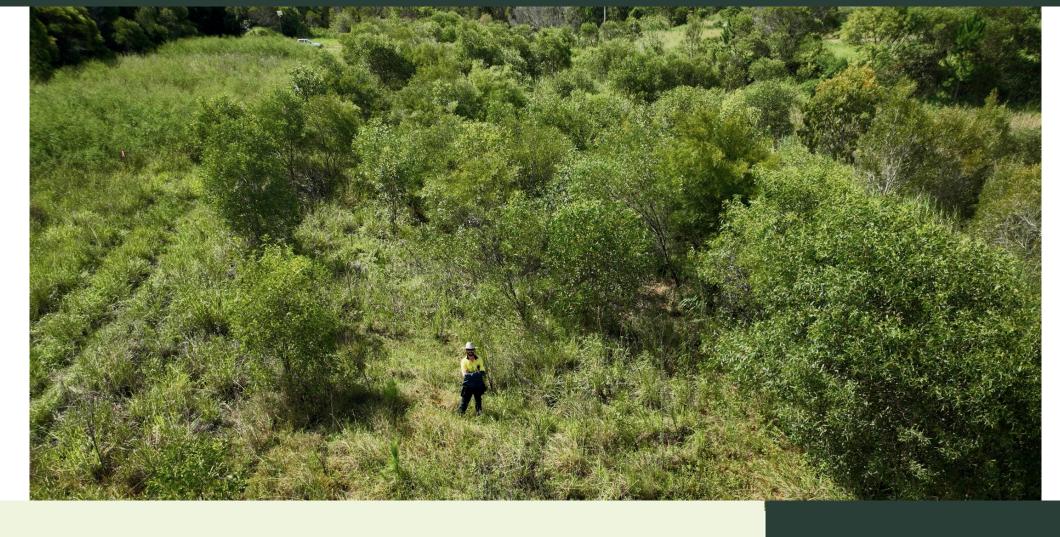
# Methodology

- ~0.4 ha site divided into "Native" and "Pasture" trial zones.
  - "Native" trial received seed mix containing 15 native species
  - "Pasture" trial received the same + pasture seed mix (8 exotic species)
- Follow-up weed control and germination monitoring over 36 months.











### Results

### Species Establishment

- All 15 native species germinated.
  - Native trial: high woody establishment
  - o Grazing trial: recruitment suppressed by pasture

## Cost Savings

• ~30% cheaper than tubestock over 3 years (direct seeding \$17,720; tubestock \$25,569).

### **Compliance**

 Canopy density: 5,200 vs 600 stems/ha (≈8.7× target). Compliance assessment based on Native trial results.

# Conclusion

Direct seeding is a viable, scalable alternative under the PRCP framework, provided it is paired with careful site preparation and sustained early weed control.





