

## Estilosantes Campo Grande in Brazil: a tropical forage legume success story

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### Introduction

Estilosantes Campo Grande (ECG) is a mixture (80:20 by weight) of *Stylosanthes capitata* and *S. macrocephala*, derived through genetic combination of selected accessions by open crossing over 6 generations (Grof *et al.* 2001). The cultivar is the result of >10 years of research on a collection of >1000 ecotypes of *Stylosanthes* species collected and maintained by Embrapa. The main use of ECG in Brazil is to improve grass-dominant pastures. It has good persistence with *Brachiaria* spp., *Panicum maximum* (Tanzania-1 and Mombaça) and *Andropogon gayanus*. It has excellent adaptation to infertile sandy soils and is persistent under grazing. In regional trials, ECG was the best performer in S Brazilian Cerrados, where the dry season is less severe. Although it does not retain foliage after the rainy season in areas with a long and intense dry season, it still contributes to nitrogen fixation and animal nutrition during the rainy season. It is a prolific seed producer and seedling recruitment is its main mechanism of persistence. More than 500 t of ECG seed has been produced since its commercial release and the estimated area planted to this cultivar has increased from <500 ha in 2000 to nearly 150 Kha by 2004, mainly in the Brazilian savannas.

### Major reasons for success

1. *An excellent performance drives strong market demand.* Interest in this variety is increasing because of: (a) good adaptation to infertile soils, mainly sandy soils; (b) production of 12–15 t DM/ha/yr; (c) prolific seed production (250–500 kg/ha); (d) seed being cheaper than that of *S. guianensis* cv. Mineirão, with prospects of further reduction in seed production costs from mechanical seed harvesting; (e) anthracnose resistance; (f) >5 years persistence under grazing in well managed mixed *Brachiaria decumbens* pastures; (g) high natural reseedling and strong seedling recruitment in the pasture; (h) 180 kg/ha nitrogen fixation in protein bank; (i) 18–27% increase in cattle liveweight gain in mixed pastures with *B. decumbens* compared with grass alone; and (j) increased biological activity on soils, making the system more sustainable.
2. *Strong private-public partnership has led technology development.* The R&D leading to the development and release of ECG was a partnership between Embrapa Gado de Corte and Ribeirão Agropecuária and other farmers in Brazil. Practical on-farm experience of farmers was combined with the scientific

and technical expertise of a multidisciplinary team of researchers to better define and identify problems and gaps in technology and develop solutions. Consequently, problems often were resolved rapidly and the 'best practice' solution was adopted quickly.

3. *Simple and profitable technology.* Prolific seed production, high nutritional quality and persistence under grazing have been very important factors for its adoption by farmers. Seed is produced separately for each species and mixed at the point of sale. The seed price varies from US\$4–6/kg, which is cheaper than Mineirão. Recently introduced commercial mixtures of 1 part Mineirão and 3 parts ECG, sown at 2 kg/ha, have further reduced cost. A new technique of row sowing of ECG in established grass pastures, using a no-tillage farming system that does not involve the removal of animals at sowing, has reduced cost further and increased flexibility and adoption.

4. *Effective international collaboration with strong national support.* A team approach was used to develop agronomic principles and to extend knowledge on how best to establish and manage ECG for different farming/grazing systems. Scientists, seed producers and farmers worked together to develop an 'agronomy package' for use by farmers. The technology was well publicised by Embrapa and its collaborators through field days, tours, publications, one-on-one extension and TV and radio interviews. National and international agencies, including Embrapa, seed growers and ACIAR, all supported, funded and promoted the 'quick uptake of the best technology'.

### Conclusion

ECG is the main legume currently used under grazing in the savannas of Brazil. Since its release in 2000, its use has increased steadily due to its superior performance and development of the technology in close association with seed producers and farmers. By increasing productivity and sustainability while delivering significant economic benefits to the farmer, ECG offers high hopes of restoring international competitiveness to the Brazilian Beef Industry.

### Reference

- GROF, B., FERNANDES, C.D. and FERNANDES, A.T.F. (2001) A novel technique to produce polygenic resistance to anthracnose in *Stylosanthes capitata*. *Proceedings of the XIX International Grassland Congress, Sao Paulo, Brazil*. pp. 525–526.