

Morphogenetic and structural characteristics of *Andropogon gayanus* cut to different heights over seasons



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Introduction

95% LI can be considered the optimum time for interrupting regrowth

However, the severity of defoliation must be adjusted

the study of morphogenesis may help to define management goals

Objective → to evaluate the morphogenetic and structural characteristics of *Andropogon gayanus* cv. Planaltina cut at three different heights

Materials and methods

- Experiment: Animal Science Department, Universidade Federal de Viçosa, Brazil
- Period: November 2007 to November 2008
- Treatments: three cutting heights (20, 27 and 34 cm)
 - ↳ when reaching 95 % light interception during regrowth
- Experimental design: completely randomized block with three replicates
- Experimental units: plots of 12 m²
- Monitoring and evaluations:
 - ↳ late spring (November and December);
 - ↳ summer (January, February and March);
 - ↳ autumn (April, May and June)
- ANOVA using the MIXED procedure of the SAS statistical package
 - ↳ means: estimated by LSMEANS; compared using Student's t-test (alpha = 5%)



Results and discussion

Table - Morphogenetic and structural characteristics of *Andropogon gayanus* cut at different heights when reaching 95 % light interception during regrowth

| Time of year | Cutting height (cm) | | | SEM |
|---|---------------------|----------|---------|-------|
| | 20 | 27 | 34 | |
| Final leaf length (cm leaf⁻¹) | | | | |
| Late spring | 16.8 Ca | 18.2 Ba | 19.8 Aa | 0.43 |
| Summer | 16.2 Ba | 17.7 Aa | 17.8 Ab | 0.58 |
| Autumn | 13.7 Cb | 16.3 Ab | 15.5 Bc | 0.34 |
| Phyllochron (days leaf⁻¹) | | | | |
| Late spring | 11.0 Bb | 12.5 Aa | 10.9 Bb | 0.21 |
| Summer | 13.2 Aa | 13.6 Aa | 12.8 Aa | 0.46 |
| Autumn | 10.7 Aa | 7.5 Bb | 6.1 Bc | 0.80 |
| Number of living leaves (leaves tiller⁻¹) | | | | |
| Late spring | 3.13 Ba | 3.36 Abc | 3.76 Ac | 0.105 |
| Summer | 2.98 Cb | 3.66 Bb | 4.34 Ab | 0.110 |
| Autumn | 3.55 Cab | 4.84 Ba | 5.88 Aa | 0.158 |
| Leaf lifespan (days leaf⁻¹) | | | | |
| Late spring | 34.5 Bb | 41.9 Ab | 40.7 Ab | 0.47 |
| Summer | 39.4 Ba | 49.6 Aa | 55.4 Aa | 1.87 |
| Autumn | 37.9 Aa | 30.0 Bc | 35.8 Ac | 0.75 |

Means followed by the same lowercase letters within columns and uppercase letters within rows are not significantly different (P>0.05)
SEM = standard error of the mean.

Besides this, greatest stem elongation rate (0.503 compared to 0.091 and 0.093 cm tiller⁻¹ day⁻¹ for late spring summer, respectively)

Flowering changes the patterns of growth and development of the plants

In addition, greatest leaf senescence (0.564 compared to 0.508 and 0.417 cm tiller⁻¹ day⁻¹ for cuts to 27 and 34 cm, respectively)

Cutting heights of 20 cm were drastic enough to damage the canopy structure, causing increased decapitation and death of tillers

Conclusions

A cutting height of 20 cm may be drastic for *Andropogon gayanus* cv. Planaltina subjected to management when the canopy reaches 95 % interception of incident light
Under conditions of intermittent maintenance, defoliation of *Andropogon gayanus* cv. Planaltina should be interrupted when the stubble height is approximately 27 cm