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

Nascimento Júnior D.¹, Sousa B.M.L.¹, Da Silva S.C.², Monteiro H.C.F.¹, Rodrigues C.S.¹, Souza Júnior S.J.², Sbrissia A.F.³, Ramos R.S.¹

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:
  - Seasons: 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>
<thead>
<tr>
<th>Time of year</th>
<th>Cutting height (cm)</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Late spring</td>
<td>16.8 Ca</td>
<td>18.2 Ba</td>
</tr>
<tr>
<td>Summer</td>
<td>16.2 Ba</td>
<td>17.7 Aa</td>
</tr>
<tr>
<td>Autumn</td>
<td>13.7 Ch</td>
<td>16.3 Ab</td>
</tr>
<tr>
<td>Phyllochron (days leaf⁻¹)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late spring</td>
<td>11.0 Bb</td>
<td>12.5 Aa</td>
</tr>
<tr>
<td>Summer</td>
<td>13.2 Aa</td>
<td>13.6 Aa</td>
</tr>
<tr>
<td>Autumn</td>
<td>10.7 Aa</td>
<td>7.5 Bb</td>
</tr>
<tr>
<td>Number of living leaves (leaves tiller⁻¹)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late spring</td>
<td>3.13 Ba</td>
<td>3.39 Ab</td>
</tr>
<tr>
<td>Summer</td>
<td>2.98 Ch</td>
<td>3.66 Bb</td>
</tr>
<tr>
<td>Autumn</td>
<td>3.55 Cab</td>
<td>4.84 Ba</td>
</tr>
<tr>
<td>Leaf lifespan (days leaf⁻¹)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late spring</td>
<td>34.5 Bb</td>
<td>41.9 Ab</td>
</tr>
<tr>
<td>Summer</td>
<td>39.4 Ba</td>
<td>49.6 Aa</td>
</tr>
<tr>
<td>Autumn</td>
<td>37.9 Aa</td>
<td>30.0 Bc</td>
</tr>
</tbody>
</table>

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