DIGITAL APPENDIX 1

Mean, minimum, maximum, standard deviation, correlation coefficient and quadratic equation for morphological traits and yield (cumulative) of guinea grass in open and shaded conditions

APÉNDICE DIGITAL 1

Media, mínimo, máximo, desviación estándar, coeficiente de correlación y ecuación cuadrática para los caracteres morfológicos y rendimiento (acumulativo) del zacate guinea en condiciones abiertas y sombreadas

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Ambient sunlight  (Open) | 25 % shade | 50 % shade | 75 % shade | Correlation coefficient open *vs* 50 % shade | Quadratic equation |
| Green forage yield MT/ha | Minimum | 14.93 | 32.11 | 51.00 | 46.51 | 0.5051\*\* | y=-9.779x2+66.06x-14.35 |
| Maximum | 77.50 | 146.12 | 203.34 | 180.80 |
| Mean | 43.56 | 73.78\*\*a | 100.70\*\* a | 91.81\* a |
| SD | 13.94 | 27.31 | 39.70 | 26.24 |
| Dry matter yield MT/ha | Minimum | 3.93 | 6.82 | 9.93 | 9.85 | 0.5433\*\* | y=-1.559x2+10.44x+2.176 |
| Maximum | 19.46 | 30.41 | 39.24 | 38.66 |
| Mean | 11.31 | 16.09\*\* a | 20.42\*\* a | 18.78 |
| SD | 3.52 | 5.74 | 7.31 | 5.42 |
| Plant height (cm) | Minimum | 94.30 | 121.30 | 128.30 | 140.30 | 0.2989\*\* | y=-7.65x2+55.47x+74.5 |
| Maximum | 153.30 | 184.30 | 221.0 | 203.30 |
| Mean | 122.30 | 154.80\*\* a | 172.0\*\* a | 174.0 |
| SD | 14.40 | 16.0 | 16.70 | 16.60 |
| Leaf length (cm) | Minimum | 40.0 | 46.30 | 68.70 | 77.0 | 0.5193\*\* | y=-4.275x2+32.1x+38.27 |
| Maximum | 88.70 | 104.0 | 111.0 | 132.0 |
| Mean | 66.30 | 84.80\*\* a | 96.70\*\* a | 98.10 |
| SD | 12.60 | 13.90 | 8.10 | 9.70 |
| Leaf width (cm) | Minimum | 1.70 | 1.70 | 1.70 | 1.70 | 0.4368\*\* | y=-1.075x2+13.32x+9.075 |
| Maximum | 2.70 | 3.30 | 3.10 | 3.50 |
| Mean | 2.10 | 2.30\*\* a | 2.40\* a | 2.50 |
| SD | 0.20 | 0.30 | 0.30 | 0.40 |
| Chlorophyll index | Minimum | 12.30 | 17.60 | 22.90 | 30.0 | 0.2069 | y=-0.025x2+0.255x+1.875 |
| Maximum | 37.40 | 55.60 | 58.20 | 58.50 |
| Mean | 20.90 | 32.10\*\* a | 38.70\*\* a | 45.40\*\* a |
| SD | 5.40 | 7.50 | 8.20 | 7.10 |

\* = significant at 5 %; \*\* = significant at 1 %, a = paired t-test significance with respect to values in immediate left column.

DIGITAL APPENDIX 2

ANOVA test based on grouped genotypes

APÉNDICE DIGITAL 2

Tabla de ANOVA basada en genotipos agrupados

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Group 1- GFY | | Group 1- DMY | |
| Source of Variation | df | *MS* | *F* | MS | F |
| Genotypes | 26 | 165061.06 | 3.16\*\* | 5358.06 | 2.52\*\* |
| Treatment | 3 | 1880182.61 | 35.99\*\* | 47188.11 | 22.16\*\* |
| Error | 78 | 52239.17 |  | 2129.39 |  |
|  |  | Group 2 - GFY | | Group 2 - DMY | |
| Genotypes | 16 | 222740.97 | 11.85\*\* | 10087.99 | 9.93\*\* |
| Treatments | 3 | 1219253.71 | 64.88\*\* | 38064.42 | 37.49\*\* |
| Error | 48 | 18793.78 |  | 1015.42 |  |
|  |  |  |  |  |  |
| F\* |  |  | 2.7796 |  | 2.097043 |
| P value |  |  | 0.000114 |  | 0.003319 |

\* = significant at 5 %; \*\* = significant at 1 %, F\*= modified F value.

DIGITAL APPENDIX3

Correlation matrix based on residuals (below the diagonals) and variances x 10-2 (on the diagonals) of the repeated cuttings

APÉNDICE DIGITAL 3

Matriz de correlación basada en el efecto residual (por debajo de las diagonales) y varianzas x 10-2(en las diagonales) de los cortes repetidos

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Ist cut | IInd cut | IIIrd cut | IVth cut | Ist cut | IInd cut | IIIrdcut | IVth cut |
|  | GFY Open | | | | DMY Open | | | |
| Ist cut | 0.17 |  |  |  | 0.01 |  |  |  |
| IInd cut | 0.92 | 0.27 |  |  | 0.95 | 0.02 |  |  |
| IIIrd cut | 0.79 | 0.84 | 0.66 |  | 0.84 | 0.89 | 0.04 |  |
| IVth cut | 0.59 | 0.63 | 0.92 | 1.94 | 0.63 | 0.66 | 0.89 | 0.12 |
|  | GFY 25 % shade | | | | DMY 25 % shade | | | |
| Ist cut | 2.72 |  |  |  | 0.16 |  |  |  |
| IInd cut | 0.95 | 5.16 |  |  | 0.96 | 0.26 |  |  |
| IIIrd cut | 0.82 | 0.80 | 35.47 |  | 0.90 | 0.89 | 1.30 |  |
| IVth cut | 0.75 | 0.73 | 0.98 | 74.58 | 0.81 | 0.78 | 0.95 | 3.29 |
|  | GFY 50 % shade | | | | DMY 50 % shade | | | |
| Ist cut | 0.30 |  |  |  | 0.02 |  |  |  |
| IInd cut | 0.89 | 0.72 |  |  | 0.94 | 0.03 |  |  |
| IIIrd cut | 0.85 | 0.82 | 9.68 |  | 0.88 | 0.87 | 0.26 |  |
| IVth cut | 0.83 | 0.81 | 0.98 | 15.76 | 0.87 | 0.85 | 0.97 | 0.53 |
|  | GFY 75 % shade | | | | DMY 75 % shade | | | |
| Ist cut | 2.30 |  |  |  | 0.12 |  |  |  |
| IInd cut | 0.80 | 7.95 |  |  | 0.87 | 0.33 |  |  |
| IIIrd cut | 0.73 | 0.91 | 43.91 |  | 0.82 | 0.93 | 1.55 |  |
| IVth cut | 0.70 | 0.82 | 0.93 | 68.83 | 0.75 | 0.80 | 0.89 | 2.93 |

DIGITAL APPENDIX 4

Covariance adjusted and unadjusted t-test for the pooled (all genotypes) genotypes for yield

APÉNDICE DIGITAL 4

Prueba-t ajustada y no ajustada para los genotipos agrupados (todos los genotipos) para rendimiento

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | GFY open | | | GFY 25 % shade | | | GFY 50 % shade | | | GFY 75 % shade | | |
|  | 1 vs 2  cutting | 2 vs 3 cutting | 3 vs 4  cutting | 1 vs 2  cutting | 2 vs 3 cutting | 3 vs 4  cutting | 1 vs 2  cutting | 2 vs 3 cutting | 3 vs 4  cutting | 1 vs 2  cutting | 2 vs 3 cutting | 3 vs 4  cutting |
| t adjusted | 8.52\*\* | -9.74\*\* | -5.25\*\* | 6.45\*\* | -10.59\*\* | 2.34\*\* | 3.57\*\* | -9.41\*\* | 3.98\*\* | 1.26 | -10.53\*\* | 3.41\*\* |
| t unadjusted | -3.93\*\* | -7.88\*\* | -7.52\*\* | -5.46\*\* | -9.78\*\* | -4.75\*\* | -6.90\*\* | -9.45\*\* | -3.93\*\* | -8.63\*\* | -10.58\*\* | -5.47\*\* |
|  | DMY open | | | DMY 25 % shade | | | DMY 50 % shade | | | DMY 75 % shade | | |
| t adjusted | 11.13\*\* | -9.86\*\* | -8.60\*\* | 9.61\*\* | -10.85\*\* | -2.47\*\* | 8.24\*\* | -9.83\*\* | -0.98\*\* | 5.32\*\* | -10.18\*\* | -1.66 |
| t unadjusted | -3.12\*\* | -6.82\*\* | -8.77\*\* | -4.17\*\* | -8.59\*\* | -6.26\*\* | -5.05\*\* | -8.86\*\* | -5.89\*\* | -6.96\*\* | -9.40\*\* | -6.94\*\* |

\*\* = significant at 1 %

DIGITAL APPENDIX 5

Covariance adjusted and unadjusted t-test for the grouped genotypes for yield

APÉNDICE DIGITAL 5

Prueba-t ajustada y no ajustada para los genotipos agrupados para el rendimiento

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | open | 25 % shade | 50 % shade | 75 % shade |
|  | GFY | | | |
| t adjusted | -0.52 | -1.58 | -1.30 | 3.17\*\* |
| t unadjusted | -0.31 | -1.56 | -1.57 | 2.55\*\* |
|  | DMY | | | |
| t adjusted | -0.55 | -1.27 | -0.88 | 3.39\*\* |
| t unadjusted | -0.63 | -1.69\* | -1.61 | 3.44\*\* |

\* = significant at 5 %; \*\* = significant at 1 %.