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Herbage accumulation, nutritive value and persistence of Mulato II in Florida

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Introduction

Grasses in the \textit{Brachiaria} genus are the most widely grown forages in tropical America, occupying over 80 Mha (Bod- 
dey \textit{et al.} 2004). Mulato II is apomictic and a vigorous, 
semi-erect cultivar resulting from 3 generations of crosses 
including original crosses between ruzigrass and signal-
grass (cv. Basilisk, apomictic tetraploid). According to 
Peters \textit{et al.} (2003), Mulato produced 25% more herbage 
mass than palisadegrass (\textit{Brachiaria brizantha}) and koroni-
viagrass (\textit{Brachiaria humidicola}) under similar 
management practices. Although Mulato II shows promise 
as a forage in tropical regions, herbage accumulation and 
persistence in subtropical areas is unknown. This publica-
tion summarises results of the research with Mulato II 
directed in Florida in the last 5 years.

Methods

South Florida

This experiment was conducted on Mulato II in Ona, FL 
(27°26' N, 82°55' W) between August and November in 
2007 and 2008. Treatments were the factorial combinations 
of 3 stubble heights (2.5, 7.5 and 12.5 cm) and 2 harvest 
frequencies (2 and 4 weeks) in a randomised complete 
block design with 4 replicates. Plot size was 3 x 2 m with 
1-m alley between plots. Samples were analysed for \textit{in vitro} 
digestible organic matter (IVDOM) and crude protein (CP) 
concentrations.

Central Florida

The study was conducted in Gainesville, FL (29°44’N, 
82°16’W) from June 2008 to June 2010. Treatments were 
Mulato II treated as an annual (planted in 2008 and 2009), 
Mulato II treated as a perennial (planted in 2008 only), Tif-
ton 85 (\textit{Cynodon} hybrid) (planted in 2008), and Tifeleaf 3 
pearl millet (\textit{Pennisetum glaucum}) and Hayday sorghum-
sudangrass (\textit{Sorghum bicolor}) (both planted in 2008 and 
2009), arranged in a randomised complete block design 
with 4 replicates. The annual treatment for Mulato II was 
included to compare the use of this grass with the annual 
species pearl millet and sorghum-sudangrass, while the 
perennial Mulato II treatment was included to compare per-
sistence and productivity over time with Tifton 85 
bermudagrass. Plots were 5 x 5 m with a 1-m alley between 
plots. Seeded grass was planted on June 2008 and 2009. 
Tifton 85 was planted vegetatively using 100 plugs per 
plot. In general, perennials were harvested every 5-6 weeks 
throughout the summer, with slightly longer intervals dur-
ing cool autumn weather. An area of 2.88 m\textsuperscript{2} was harvested 
with a sickle-bar mower from the centre of the plot to a 10-
cm stubble height. Herbage accumulation, IVDOM, and CP 
were determined.

North Florida

The study was conducted in Marianna, FL (30°52’ N 
85°11’ W). Treatments were 3 forage species, Tifleaf 3 
pearl millet, Hayday sorghum-sudangrass and Mulato II 
arranged in a completely randomised design with 3 repli-
cates. Pastures (0.6-ha experimental units) were established 
on June 2008 and June 2009 in a prepared seedbed. Pas-
tures were stocked continuously using a variable stocking 
rate. Two heifers (Angus crossbred) were assigned as tes-
ters to each experimental unit. Additional heifers of 
comparable age and weight to the testers were introduced 
or removed to maintain similar forage stubble height (≥ 30 
cm) across experimental units. Herbage mass, nutritive val-
ue, stocking rate and average daily gains per head and per 
ha were evaluated.

Results

In south Florida, there was a quadratic decrease in herbage 
accumulation from 2.0 to 1.6 t/ha with decreasing stubble 
height. Conversely, herbage CP increased linearly with de-
creasing stubble height (from 14 to 17%), while IVDOM 
was virtually unaffected (66 vs 67%). Mulato II ground 
cover increased linearly from 74 to 87% as stubble height 
increased from 2.5 to 12.5 cm.

In central Florida, Hayday and Tifleaf 3 established 
more rapidly than Mulato II; however, Mulato II had great-
er herbage accumulation later in the fall. The perennial 
treatments (Mulato II and Tifton 85) had greater herbage 
accumulation overall than the annual treatments and Tifton 
85 had greater ground cover than Mulato II in 2009 (73 vs 
36%) and 2010 (73 vs 12%).

In north Florida, in year 1, there were no differences in 
herbage allowance (0.9 kg DM/kg body weight), average 
daily gain (0.5 kg/d) and gain/ha (168 kg) among treat-
ments. However, in year 2, Mulato II had greater herbage 
allowance (2.0 vs 0.7 kg DM/kg BW) and ADG (0.78 vs 
0.41 kg/d) than Tifleaf 3 and Hayday but similar gain/ha 
(302 kg).

Conclusions

In central and north Florida, Mulato II may behave as an
annual or biennial forage and its greater herbage accumula-
tion and nutritive value make it a suitable alternative to
Tifton 85 and warm-season annual forages. In contrast, in
south Florida, Mulato II behaves as a perennial forage and
displays superior nutritive value to the other species. How-
ever, forage production is reduced if it is cut frequently to
short stubble heights. These management strategies should
be avoided.

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