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Signalgrass for Forage

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Signalgrass (*Brachiaria decumbens* Stapf) is a native of tropical Africa (Uganda) and has been introduced and distributed to other tropical areas including the West Indies, Venezuela, Surinam, and Australia.

Signalgrass is a trailing perennial with upright, sword-shaped leaves. Its hairy leaves are a key distinguishing feature. New shoots and roots develop from each node of its stoloniferous base. The flowering stem terminates in three or four spike-like seed stalks.

This grass is adapted to humid tropical areas with a minimum rainfall of 60 inches per year and a dry season of not more than 4–5 months.

Establishment

When seeded at the recommended rate of 10 pounds per acre, under favorable conditions of adequate moisture and soil fertility levels, signalgrass will aggressively spread and form a dense cover. In a good seed lot, 60% germination can be expected by 14 days after sowing. This grass is highly palatable but may form hard stems with extended pasture rest periods. Legume associations with signalgrass pastures are not recommended due to its rapid growth and habit of forming a mat. Its dense growth would limit the establishment and persistence of legumes.

Management

Due to its aggressive growth habits, signalgrass stands up well to heavy stocking and trampling.

Field work in Hawaii

Field plots (10 x 100 ft) were established at three CTAHR research stations (Mealani, Waiakea, and Waimanalo). The plots were harvested at regrowth intervals of 4, 8, and 12 weeks at each of the three stations. Only a minimum maintenance level of fertilizer was applied, consisting of 2.25 lb of urea and 2.1 lb of muriate of potash per plot every 3 months (equivalent to 390 lb of urea and 365 lb of muriate of potash per acre per year). Testing the soil before any fertilizer application is strongly recommended. Yield data for the three sites are shown in Table 1. The harvested forages were sent to CTAHR's Agriculture Diagnostic Service Center for tissue analysis, and results are given in Table 2.

Resistance to the yellow sugarcane aphid

More than 250 grasses were screened and scored on a 10-point scale, 0 (no damage) to 9 (plant death), to evaluate tolerance to the yellow sugarcane aphid, *Sipha flava* Forbes. A resistance score was established for each grass tested, and signalgrass scored 3.00 ± 0.2 (mean ± standard error).

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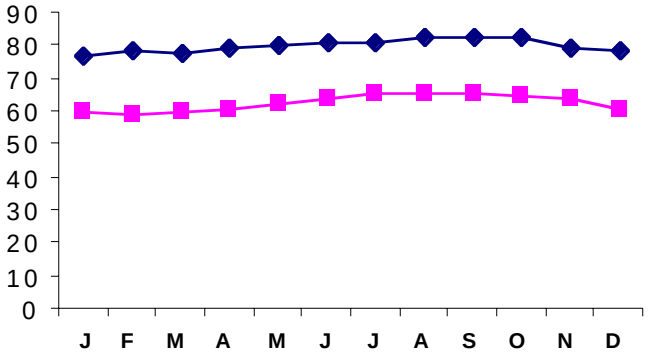
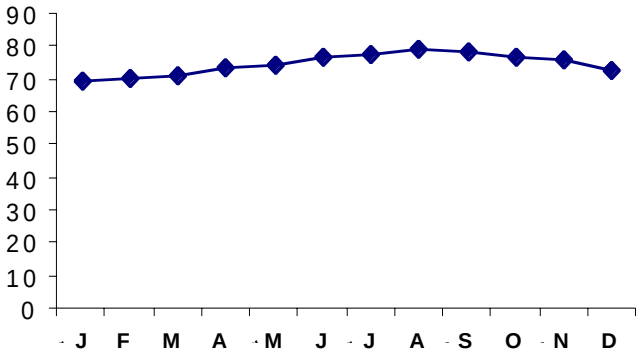
Average maximum and minimum temperatures (°F) at Waiakea Research Station, 1988–1994.



Average temperatures (°F) at Waimanalo Research Station, 1991–1994.



Caution

Signalgrass has been reported to be toxic to sheep.

Acknowledgments

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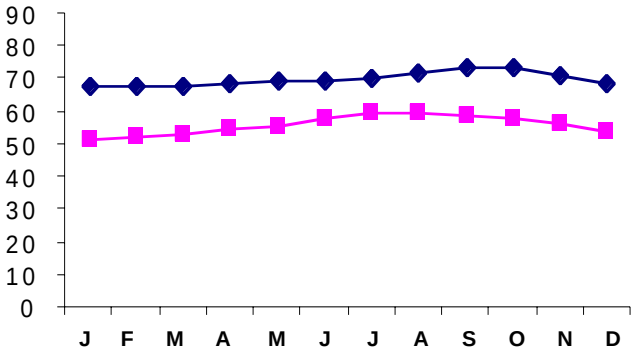
Average maximum and minimum temperatures (°F) at Mealani Research Station, 1988–1994.



Average monthly rainfall at three CTAHR research stations, 1991–1994.

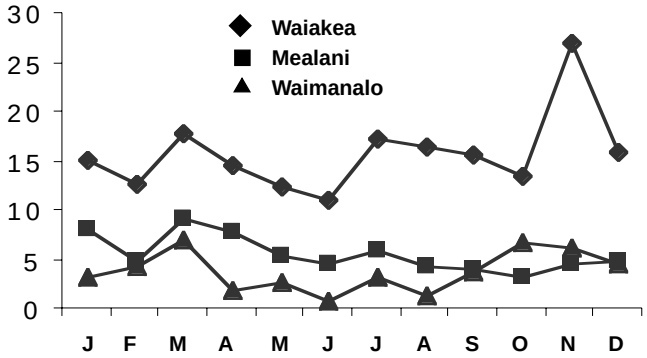


Table 1. Yield of signalgrass (lb/acre) in three locations at three regrowth periods (mean ± standard error).

Location	N	4 weeks	N	8 weeks	N	12 weeks
Mealani	39	669.3 [a] ± 122.8	39	2062.4 [a] ± 313.8	39	3181.7 [a] ± 449.0
Waiakea	36	568.2 [a] ± 57.1	39	4061.3 [b] ± 280.9	39	5077.7 [b] ± 371.8
Waimanalo	39	1363.0 [b] ± 211.4	39	3130.4 [c] ± 312.2	39	4432.1 [b] ± 362.9

N = number of harvest samples.
Means within columns with different superscripts are significantly different (P< 0.05).

Table 2. Nutrient composition (%) of signalgrass at different stages of growth.

Mean ± standard error

Stage	Dry matter	Crude protein	NDF	ADF	P	K	Ca
4 wks	21.0 ± 0.7	15.9 ± 0.6	52.7 ± 1.4	26.2 ± 0.05	0.28 ± 0.01	4.55 ± 0.18	0.43 ± 0.03
8 wks	31.7 ± 1.7	11.1 ± 0.8	61.4 ± 0.9	31.5 ± 0.4	0.17 ± 0.06	1.78 ± 0.63	0.36 ± 0.11
12 wks	38.1 ± 2.3	9.3 ± 1.2	63.8 ± 0.6	33.4 ± 0.5	0.22 ± 0.01	2.12 ± 0.07	0.50 ± 0.01

Maximum-minimum values

Stage	Dry matter	Crude protein	NDF	ADF	P	K	Ca
4 wks	19.7–22.2	14.1–19.0	47.5–59.4	23.5–29.0	0.25–0.30	4.21–4.84	0.38–0.48
8 wks	28.4–34.3	7.3–12.4	56.8–66.4	29.1–33.0	0.06–0.25	0.54–2.59	0.13–0.48
12 wks	35.8–40.3	6.63–13.4	60.9–66.9	31.3–36.4	0.21–0.23	2.05–2.19	0.49–0.50

NDF = neutral detergent fiber; ADF = acid detergent fiber; P = phosphorus; K = potassium; Ca = calcium

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