

Chemical Analysis

Seed, green forage, and baled hay of 'Tropic Sun' sunn hemp were sent to the Poisonous Plant Research Laboratory, USDA-SEA, Western Region, Utah State University, for laboratory analysis and feeding trials. Data in Table 1 and the following narrative were taken from the October 1978 Poisonous Plant Newsletter by M. Coburn Williams.

Data from forage samples analyzed by the Animal Sciences Department, University of Hawaii, are presented in Tables 2 and 3.

Table 1.--Analysis of Desmodium, Crotalaria, Dolichos, and Glycine for toxic compounds.

Species	: Alkaloids : : (percent)	: NO ₂ : : (mg/g)	: Soluble : : oxalates : (percent)	: Tannins : : (percent)	: Cyanogenic : : Glycosides : : (percent)
'Kuiaha' <u>Desmodium intortum</u>	0.07	0.0	11.2 & 4.4	3.3	0.0
HA-3669 <u>Desmodium cinerascens</u>	0.02	0.0	0.9	1.5	0.0
'Tropic Sun' <u>Crotalaria juncea</u>	0.11	0.0	0.7	0.0	0.0
HA-3518 <u>Dolichos hosei</u>	0.04	0.0	1.6	0.0	0.0
HA-1129 <u>Glycine wightii</u>	0.02	0.0	1.4	0.6	0.0

"With the exception of soluble oxalates in Desmodium intortum, no poisonous compounds were found in toxic levels. All species were extracted with 70 percent ethanol and fed to chicks as a water extract (1 ml = 2 g of dried plant). Milliliters of extract required for LD₅₀ were:

Desmodium intortum, 2 ml (using high oxalate material);
Glycine wightii, 3 ml;
Dolichos, Crotalaria, and Desmodium cinerascens were nontoxic at 7 ml. Crotalaria seed, also extracted, was nontoxic at 7 ml."

"We fed the Crotalaria juncea to a Hereford calf for 2 months without ill effects."

Table 2.--Laboratory analysis of 'Tropic Sun' sunn hemp harvested for hay at late-bud state.

	Unit	Sample No. 1 Fine-textured hay	Sample No. 2 Coarse-textured (stemmy) hay	Average
Dry Matter	%	89.8	89.7	89.8
Crude Protein	%	18.3	12.5	15.4
Crude Fat	%	1.7	1.0	1.4
Crude Fiber	%	35.6	41.5	38.6
Phosphorus	%	0.31	0.19	0.25
Potassium	%	3.03	2.83	2.93
Calcium	%	0.93	0.64	0.79
Magnesium	%	0.37	0.32	0.35
Ash	%	12.2	10.9	11.6
Sodium	%	0.05	0.05	0.05
Manganese	ppm	354.0	354.0	354.0
Iron	ppm	3725.0	4275.0	4000.0
Copper	ppm	11.0	11.0	11.0
Zinc	ppm	65.0	48.0	56.5

Table 3.--Laboratory analysis of 'Tropic Sun' sunn hemp regrowth harvested at 45.8 cm after 20 days.

Dry Matter (percent)	Crude Protein (percent)	Crude Fat (percent)	Crude Fiber (percent)	Ash (percent)
35.0	25.3	3.1	25.3	9.7