NORTHERN TERRITORY

DEPARTMENT OF PRIMARY INDUSTRY

AND FISHERIES

NUTRIENTS IN PASTURE

LEGUMES IN THE

TOP END

OF THE

NORTHERN TERRITORY

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Technical Bulletin No. 262
Third Edition 2001

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SUMMARY

Monthly tabulated data is presented for the “normal” range of nutrient concentrations determined in pasture legumes and other forage plants.

ACKNOWLEDGEMENTS

The author thanks the many Departmental staff who made this publication possible. They include Ms B Ross, Ms R Rann, Dr D Ffoulkes, Mr B Lemcke, Mr J Sturtz, Mr R Wesley-Smith, Mr J Austin, Mr R Dance, Mr R Andison, Dr K Thiagalingam and Mr M Bennett for permission to use their data; Messrs J Koomen, B Beumer, D Reilly and N King for their technical assistance; the Chemistry Section staff Mr L de Souza, Mr A Caroca, Ms S Soong and Mr G Kyle for the many chemical analyses; and Mrs H Hore, Mrs J Donne, Mrs G Hore and Ms D Questroy for assistance in the preparation of the manuscript.

INTRODUCTION

This bulletin summarises the nutrient concentrations recorded in pasture species and fodder crops in the Top End of the Northern Territory. For the purposes of this bulletin, the Top End is regarded as being from Daly Waters north.

Most of the data presented was obtained from research trials conducted by Pastures Section staff. Some of the data was obtained from research trials conducted by other Sections in the Department including Animal Production and Crops, while a minor component was obtained from published papers on trials conducted by CSIRO.

The nutrient concentrations are presented as a range "normally" recorded in plant tops for each species during each month of the year.

There are a number of factors which influence the nutrient concentrations found in plants. These factors are biology, climate, soil, topography and management.

Effects of Plant Biology on Nutrient Concentrations

The factors involved in plant biology are species, plant type (grass vs legume or annual vs perennial), plant component (stem vs leaf) stage of growth (vegetative vs reproductive) and maturity (early vs late).

Plant species can and do differ in the levels of nutrients they require in their tissues for growth, and the levels they accumulate in tissues.

There are two main groups of plants used as pasture plants, grasses and legumes.

Tropical grasses generally contain lower levels of plant nutrients, particularly nitrogen (Fisher 1971, Norman and Wetselaar 1960) than do the legumes.

Tropical legumes can be quite variable in form, ranging from twining, sprawling habit through erect herbs, small shrubs to small trees. Nutrient concentrations in these legumes are generally higher than the grasses during the mid wet season/early dry season (Fisher 1971) but can drop down to similar levels during the late dry season. The nitrogen levels in legumes are much higher than those in grasses because the legumes fix their own nitrogen from the atmosphere.

Annual plants have similar nutrient concentrations to perennial plants during the wet (growing) season. Towards the late wet season and into the dry season the annual plants channel their nutrients into their seed, which can lead to a rapid decrease in plant nutrient concentrations (Ardnt and Norman 1959, Fisher 1971). Some of the perennial plants store nutrients in their root systems. This allows them to produce a rapid flush of growth early in the next wet season when the annual plants are re-establishing from seed.

Plant component has an important bearing on nutrient concentration. Leaves contain higher levels of most nutrients than do stems. This is illustrated by the tables for a number of the legumes in this bulletin. Grazing animals will generally graze plant

leaf in preference to the lower quality stem. While the nutrient concentrations in whole tops gives a guide to the quality of feed on offer, the grazing animal can generally select material containing higher levels of nutrients.

Stage of growth is critical. plant nutrient concentrations are high during the early vegetative phase of growth (Fisher 1973), but decline as the plant ages, then begins to flower and set seed (Arndt and Norman 1959). Nutrients are withdrawn from the leaves and stem and stored in the developing seed. At the same time, the plants shed some of their older leaves (Wesley-Smith et al. 1982).

Maturity influences the nutrient concentration towards the end of the wet season and early in the dry season. There are differences between species and within species in times of maturity. The later maturing species or cultivars will have higher nutrient concentrations later in the wet season. An example of this is the two *Centrosema pascuorum* cultivars Bundey and Cavalcade where Bundey flowers one month later than Cavalcade (Stockwell 1985 a,b).

Effects of Climate on Nutrient Concentrations

The principal climatic factor which influences nutrient concentrations is rainfall. The main effects are due to timing of the rainfall at the beginning and the end of the wet season.

The amount and duration of rainfall decreases over the Top End from over 1600 mm in the north to 600 mm in the south at Daly Waters. Because of the longer wet season in the north, the plants there can grow and maintain their nutrient levels for longer into the dry season, and active growth commences earlier in the wet season compared with the south.

Rain early in the wet season (McCown and McLean 1983) or late in the wet season will allow plants to have nutrient concentrations towards the higher end of the "normal" range. In a dry start or finish to the wet season, the nutrient concentrations will be towards the lower end of the scale.

Effects of Soil Type on Nutrient Concentrations

Most of the soils in the Top End have low available levels of most plant nutrients, and nutrient deficiencies have been confirmed on a number of soils (Calder and Day 1982, Calder et al. 1983). Some soils have adequate levels of some nutrients, including the grey clay floodplain soils which contain adequate levels of phosphorus, sulfur and potassium and the Tippera soils which have adequate potassium levels. There can be an interaction between soil type and plant species which will affect plant nutrient concentrations. Some plants can extract nutrients at lower available levels. Many pasture plants can grow on a range of soil types and contain a range of nutrient concentrations depending on the soil in which they are growing.

Effect on Topography on Nutrient Concentrations

The effects of topography are mainly related to moisture. On one end of the scale, rocky ridges with shallow soil dry out quickly after the wet season, and the plants growing in that situation mature early. The nutrient concentrations would be similar to those in a lower rainfall area. The other end of the scale are the seasonally inundated coastal plains which are flooded and do not dry out until late in the dry season. In this situation the plants continue to grow and maintain their nutrient concentrations through the dry season.

Between these two extremes are a range of situations of varying length of growing season where the length of the growing season increases in low-lying waterlogged or seasonally flooded areas, or areas where the water table remains close to the soil surface.

Effects of Management on Nutrient Concentrations

The management factors which can influence nutrient concentrations are sowing date (month vs year) fertilisation practices, grazing or cutting management and irrigation practices.

The effect of sowing date on plant nutrient concentrations is illustrated by Fisher (1969), where there were consistent differences in nitrogen content of Townsville stylo (*Stylosanthes humilis*) stems and leaves between November and a December sowing.

This effect is also reflected in the comparison of first year stands with second and older year stands of pasture species where at the equivalent stage of the wet season the first year stands consistently have higher nutrient contents. This is related to the maturity of the plants as they generally require the same amount of time to reach maturity, and the sowing date can be from one to three months after the start of the wet season when established swards commence their growing season.

Fertilisation practice is the most important influence on the nutrient content of most tropical pasture species. This is because of the low soil nutrient status of most Top End soils as mentioned previously. Most soils are low in phosphorus and sulphur, and pasture plants will contain low levels of these elements unless these fertilisers have been applied (Norman 1959). In the tables, the higher end of the ranges generally represents well fertilised pastures. This is not the case with native and naturalised pasture species, where nutrient concentrations are generally low (Norman 1963).

Grazing, cutting or burning can increase or decrease plant nutrient concentrations. During the growing season, or while there is moisture in the soil, these practices will lead to young regrowth which contains higher nutrient concentrations (Falvey 1977, Norman 1960). During the dry season, when the pastures are not growing and soil moisture reserves have been depleted, these practices will lead to lower plant nutrient concentrations (Woods 1970). Grazing animals will eat the leaf material leaving the lower quality stem (McGowan and McLean 1983).

Irrigation will ensure that a pasture sward has a longer growing season equivalent to a higher rainfall area. Plant nutrient levels will be maintained at a higher level than would be expected. The nutrient concentrations presented in this bulletin do not contain data from irrigated pastures, as very little research work has been done on this aspect of pasture production in the Top End.

Significance of the Plant Nutrient Levels

The nutrient concentrations in the pasture plants are only significant if they are so low as to affect pasture yield or to be deficient for animal production. The critical level in plants varies with stage of growth, and low levels in plants are generally used to diagnose reasons for poor growth or to confirm deficiency symptoms. The levels of nutrients required in feed for growing and lactating cattle are shown in Table 1. Nitrogen percentage is usually expressed as Crude protein (CP) % (N% x 6.25), which corresponds to 11.1 and 9.2% CP for growing cattle and cows respectively.

A comparison of the levels in Table 1 with those in the nutrient concentration tables in this bulletin gives an indication of when the various legumes contain adequate nutrient levels for cattle. Grazing animals can generally select a better diet than that indicated by a grab sample of plant tips, i.e. by selecting leaves which invariably have higher nutrient levels than stems or by selecting plants with higher nutrient levels than others i.e. legumes in the dry season generally have higher levels of nutrients than grasses.

Table 1: Feed Nutrient requirements for Cattle

Nutrient	N%	P%	K%	S%	Ca%	Mg%	Na%	Cu ppm	Zn ppm
Growing cattle	1.8	.13	.5	.15	.19	.19	.08	6	12
Lactating cows	1.5	.18	.8	.15	.24	.19	.08	7	14

The Future

The results presented in this bulletin are not exhaustive, and determinations of nutrient contents are currently being carried out on a range of pasture species.

This is the third edition of this publication. A further edition containing more information on a wider range of species may be produced in the future.

Another publication which presents ranges for feed composition factors such as digestibility, dry matter, crude fibre, ash, ether extract and non-fibre extract for a similar range of pasture species will also be produced.

Not all of the genera and species listed are recommended or available as pasture plants in the Northern Territory. Some are recommended as pasture species (Eggington and Cameron 1992), some are no longer recommended, e.g. calopo, while others are showing promise as pasture cultivars and may be released in the future.

Also included are a range of native pasture plants which are grazed to varying extent by livestock at various times of the year.

There is also a question of quantity or availability to consider. While nutrient levels may appear more than adequate in pastures in the early wet season period, the amount of pasture available may be so low as to limit to animal growth.

REFERENCES

The references will be presented in three parts. Part A will contain those references referred to in the text. Part B will contain references used to provide information presented in the nutrient Concentration Tables, but not referenced in the text. Part C contains references which provide information on pasture species in the Top End of the NT and northern WA, but not in a form which could be extracted for use in the Nutrient Concentration Tables.

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NUTRIENT CONCENTRATION TABLES

Format and Codes Used

Species Alphabetically listed by genus and species with genus, with one page per species/plant component.

Where there is a limited number of entries for a species, they are listed in line form at the end of the tables.

Common Name provided where applicable.

Cultivar name provided where applicable.

Plant Part the part of the plant sampled, generally whole tops but also may be leaf, regrowth, stem or leaves and twigs. The term "whole tops" indicates everything above about 5 cm from the ground.

Nutrient Concentrations Elements presented as a percentage (%) of dry matter are nitrogen (N), phosphorus (P), potassium (K), sulphur (S), calcium (Ca), magnesium (Mg), sodium (Na) and chlorine (Cl).

Elements presented as parts per million (ppm) of dry matter are copper (Cu), zinc (Zn), manganese (Mn), iron (Fe), molybdenum (Mo) and boron (B).

Region This shows where plants have been sampled to analyse for nutrient concentration, the codes used for the regions are:

DN - Darwin area including Berrimah Agricultural Research Centre
FL - Floodplains, seasonally inundated areas including Coastal Plains Research Station, Tortilla Flats Research Farm.
CU - Northern Coastal Upland areas including Coastal Plains Research Station, Beatrice Hills Research Station.
AR - Adelaide River upland areas including Tortilla Flats Research Farm and Mount Bundey Station.
DD - Douglas Daly area including Douglas Daly Research Farm and Tipperary Station.
KN - Katherine area including Katherine Experimental Station
VR - Victoria River area, including Victoria river Research Station
DW - Daly Waters area.

Comments Included in this are records of minor element concentrations, and other plant parts, i.e. leaf, regrowth, stem where there are records only for one months.

Crude protein percentages can be calculated by multiplying the nitrogen percentage by 6.25 (i.e. N x 6.25).

SPECIES: *Acacia angustissima*
PLANT PART: Leaves and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.3	0.9	0.2	.06	.4	.24	.01	4	10
Oct									
Nov									
Dec									
Jan	2.6	.17	0.8	.17	0.6	.26	.01	5	21
Feb	3.3	.26	1.0	.23	0.6	.31	<.01	10	39
Mar	2.9	.21	1.0	.18	0.6	.31	.02	6	25
Apr	3.1	.23	1.2	.21	0.6	.26	<.01	7	26
May	3.1	.19	0.9	.19	1.1	.45	.01	6	25
Jun	2.2 - 2.4	.11 - .19	0.5 - 0.7	.15	0.2 - 0.7	.18 - .30	<.01 - .03	4	17
Jul	3.0	.12	0.7	.16	.9	.50	.01	6	24
Aug									

REGION: CU, DN

COMMON NAME: *Acacia* sp *(bidwillii group)*
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct	2.9 - 3.3	.25 - .36	1.6 - 1.8	.18 - .20	0.8 - 1.0	.18 - .20	<.01	5	18 - 19
Nov									
Dec									
Jan									
Feb									
Mar									
Apr	2.3	.27	1.2	.16	1.0	.22	<.01	6	28
May									
Jun									
Jul									
Aug									

REGION: DD
COMMENTS: Fe: Oct 40

SPECIES: *Aeschynomene americana*
COMMON NAME: American jointvetch
CULTIVAR: Glenn, Lee
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.6 - 1.3	.01 - .07	0.1 - 1.1	.01 - .09	0.3 - 1.4	.13 - .27	.01 - .03	2 - 6	4 - 15
Oct	0.4 - 1.0	.04 - 1.2	0.3 - 0.4	.03 - .07	0.2 - 1.2	.13 - .25	.01	3	3 - 15
Nov	0.4	.03		.01	0.2	.11	<.01	2	5
Dec	2.4 - 3.0	.14 - .27	1.3 - 3.3	.19 - .25	0.7 - 1.1	.36 - .55	<.01 - .01	6 - 8	18 - 52
Jan	2.2 - 3.5	.15 - .25	0.9 - 2.7	.17 - .26	0.9 - 1.8	.37 - .48	<.01	6 - 9	14 - 47
Feb	2.0 - 3.0	.09 - .20	0.8 - 2.0	.14 - .24	0.9 - 2.0	.38 - .49	<0.1 - .04	4 - 10	14 - 47
Mar	1.7 - 2.9	.09 - .17	0.5 - 1.5	.11 - .23	0.9 - 1.4	.35 - .52	<.01 - .02	4 - 8	14 - 36
Apr	1.2 - 2.6	.06 - .17	0.4 - 1.7	.08 - .18	0.5 - 1.5	.18 - .48	<.01 - .06	2 - 7	11 - 39
May	1.1 - 2.5	.04 - .18	0.3 - 1.5	.06 - .13	0.3 - 1.4	.19 - .45	<.01 - .10	2 - 8	8 - 39
Jun	1.0 - 2.4	.04 - .15	0.2 - 1.2	.05 - .12	0.3 - 1.3	.20 - .37	<.01 - .10	2 - 8	5 - 34
Jul	1.0 - 2.2	.04 - .14	0.2 - 1.1	.05 - .12	0.3 - 1.4	.15 - .40	<.01 - .04	2 - 7	3 - 32
Aug	0.9 - 1.5	.01 - .09	0.2 - 1.1	.05 - .09	0.3 - 1.0	.15 - .33	.01 - .06	2 - 8	2 - 19

REGION: AR, CU, DD, DN, KN

SPECIES: *Aeschynomene americana*
COMMON NAME: American jointvetch
CULTIVAR: Glenn, Lee
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec					
Jan		92 - 148		.4 - .8	
Feb				<.2 - .6	
Mar	21 - 24			<.2 - .4	
Apr	19 - 26	61 - 572	140 - 175		
May	17 - 21	87 - 140			
Jun	18 - 23	35 - 59			
Jul		63 - 92			
Aug					

REGION: AR, CU, DD, DN, KN

SPECIES: *Aeschynomene americana*
COMMON NAME: American jointvetch
CULTIVAR: Glenn
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	3.4 - 2.7	.17 - .18							
Mar	2.4 - 4.6	.26 - .33	1.3	.27	1.3	.51	.03	8	26
Apr	2.5 - 3.5	.11 - .23	0.5 - 1.3	.17 - .25	0.9 - 1.7	.47 - .76	<.01	4 - 7	18 - 35
May									
Jun									
Jul	1.7 - 2.0	.08 - .12	0.3 - 0.4	.16 - .23	0.6 - 1.1	.37 - .46	.01 - .02	4	19 - 27
Aug									

REGION: AR, DN

SPECIES: *Aeschynomene americana*
COMMON NAME: American jointvetch
CULTIVAR: Glenn
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	0.9 - 1.3	.09 - .22							
Mar	1.0 - 1.4	.10 - .15	1.1	.17	0.8	.45	.02	6	22
Apr	0.6 - 1.3	.01 - .11	0.7	.08	0.5	.28	<.01	8	
May									
Jun									
Jul									
Aug									

REGION: AR, DN

SPECIES: *Aeschynomene brasiliana*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1	.03	0.3	.07	0.5	.20	.02	4	27
Oct	1.6	.04	0.5	.10	0.4	.24	.02	4	20
Nov	2.2	.08	1.0	.08	0.7	.32	.02	8	42
Dec	1.7 - 3.4	.08 - .21	0.8 - 1.2	.12 - .20	0.6 -0.9	.39 - .52	<.01 - .03	6 - 12	24 - 40
Jan	1.4 - 2.7	.07 - .18	0.6 - 1.0	.09 - .16	0.5 - 0.9	.33 - .46	<.01 - .01	6 - 11	14 - 51
Feb	2.5 - 2.8	.12 - .18	1.0	.13 - .19	0.5 - 0.7	.34 - .38	<.01 - .02	7 - 10	39
Mar	1.4 - 2.7	.07 - .17	1.0 - 1.2	.12 - .18	0.7 - 1.0	.18 - .49	.01 - .02	4 - 10	37 - 41
Apr	1.2 - 1.9	.06 - .08	0.3 - 1.0	.08 - .12	0.5 - 1.0	.18 - .36	<.01 - .02	3 - 7	21 - 32
May	0.8 - 2.1	.03 - .10	0.4 - 0.6	.04 - .11	0.1 - 0.5	.20 - .27	.01	3 - 6	14 - 32
Jun	1.0 - 1.7	.04 - .08	0.4 - 0.7	.07 - .11	0.3 - 0.7	.20 - .35	.01	3 - 4	24 - 34
Jul	0.4 - 1.2	.03 - .11	0.4 - 0.9	.06	0.5 – 0.9	.09 - .27	.02 - .05	5 - 7	28
Aug	0.8 - 1.1	.03 - .05	0.3 - 1.0	.07 - .11	0.5 - 0.8	.11 - .41	.02	4 - 7	25 - 27

REGION: CU, DN
COMMENTS: Regrowth: Oct: N 1.9; P .07; K .8; S .08; Ca .6; Mg .25; Na .03; Cu 7; Zn 24
Tops: Jan: Mo <.2

SPECIES: *Aeschynomene histrix*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1 - 1.5	.03 - .04	0.2 - 0.3	.10 - .11	0.5 - 0.9	.25 - .27	.02 - .03	4	17 - 23
Oct	2.4 - 2.7	.06 - .08	0.6 - 0.8	.08 - .12	0.4 - 0.6	.25 - .35	.01 - .02	5	19 - 23
Nov	2.5 - 2.8	.07 - .12	0.5 - 1.0	.07 - .16	0.8 - 1.0	.42 - .44	<.01	5 - 9	20 - 36
Dec	2.5	.08	0.9	.14	0.5	.25	<.01	6	37
Jan	2.3 - 2.4	.15 - .16	0.6 - 1.5	.15 - .18	0.7 - 1.1	.24 - .32	<.01	8	21 - 42
Feb	1.9 - 2.2	.11 - .17	0.5 - 1.0	.07 - .14	0.8 - 1.3	.17 - .41	.01 - .04	4 - 7	14 - 25
Mar	1.9 - 2.2	.10 - .14	0.7 - 1.2	.09 - .14	0.7 - 1.0	.29 - .39	.01	3 - 7	14 - 35
Apr	1.4 - 1.9	.05 - .11	0.4 - 1.0	.06 - .12	0.4 - 1.0	.15 - .48	<.01 - .05	3 - 6	14 - 24
May	1.2 - 2.0	.04 - .09	0.4 - 0.9	.05 - .12	0.4 - 0.9	.16 - .36	.01 - .05	2 - 5	15 - 31
Jun	0.8 - 1.6	.04 - .09	0.3 - 0.7	.06 - .11	0.5 - 1.0	.17 - .42	<.01 - .02	3 - 4	13 - 22
Jul	0.8 - 1.4	.04 - .05	0.3 - 0.5	.06 - .12	0.7 - 0.9	.17 - .34	<.01 - .02	4	25 - 36
Aug	0.6 - 1.1	.03	0.1 - 0.2	.05 - .10	0.5 - 0.6	.25 - .27	.03 - .05	2 - 4	17

REGION: CU, DN
COMMENTS: Mar: Mo .4

SPECIES: *Aeschynomene indica*
COMMON NAME: Budda pea
PLANT PART: Leaves and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.6	.06	1.3	.11	0.7	.37	.03	5	19
Oct									
Nov	2.9	.19	0.6	.19	1.2		.06	7	21
Dec	2.9 - 3.2	.17 - .23	2.3 - 2.5	.21 - .29	1.0 - 1.3	.33 - .38	<.01 - .01	12 - 15	49 - 50
Jan	2.9	.16	1.4	.28	1.3	.25	.03	5	27
Feb	2.2 - 2.7	.12 - .15	0.7 - 2.6	.17 - .25	0.9 - 1.1	.27 - .51	<.01	11	30 - 33
Mar	1.0 - 1.9	.06 - .12	1.2 - 1.8	.16 - .18	0.8 - .9	.13 - .30	<.01 - .01	3 - 13	28 - 33
Apr	0.7 - 2.5	.06 - .33	1.0 - 1.8	.06 - .30	0.3 - 1.3	.17 - .37	<.01 - .01	5 - 12	18 - 51
May	0.9 - 2.1	.06 - .23	1.1 - 1.9	.07 - .25	0.2 - 1.0	.15 - .40	<.01 - .03	5 - 8	20 - 42
Jun	1.0	.04 - .25	0.9 - 1.0	.06 - .12	0.7 - 1.4	.11 - .24	.01	5	17 - 20
Jul	0.5 - 1.4	.03 - .10	0.9 - 1.3	.05	0.7 - 1.3	.12 - .45	<.01 - .01	3 - 8	12 - 25
Aug									

REGION: AR, CU, DD, FL

SPECIES: *Aeschynomene paniculata*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.0 - 1.2	.02 - .05	0.2 - 0.6	.05 - .06	0.4 - 0.6	.15 - .16	.02 - .04	2 - 3	11 - 16
Oct	1.2 - 2.5	.03 - .06	0.4 - 0.5	.09 - .19	0.4 - 1.0	.22 - .25	.02	4	9
Nov	1.6 - 3.2	.07 - .19	0.6 - 1.7	.07 - .17	0.6 - 0.8	.18 - .48	<.01 - .07	5 - 12	34 - 37
Dec	2.4 - 3.0	.09 - .16	0.6 - 1.0	.11 - .16	0.6 - 0.9	.33 - .36	<.01 - .01	5 - 10	16 - 38
Jan	1.5 - 2.3	.10 - .14	0.7 - 0.9	.08 - .12	0.5 - 0.9	.20 - .34	<.01 - .02	6 - 7	12 - 41
Feb	1.7 - 2.6	.10 - .17	0.5 - 0.9	.09 - .13	0.5 - 0.7	.20 - .35	<.01 - .03	5 - 7	16 - 26
Mar	1.4 - 2.2	.07 - .12	0.6 - 0.7	.07 - .12	0.2 - 0.7	.21 - .36	.01 - .02	4 - 8	8 - 32
Apr	0.9 - 1.5	.04 - .15	0.3 - 0.6	.06 - .14	0.3 - 0.9	.14 - .37	<.01 - .02	3 - 6	9 - 18
May	1.0 - 2.0	.04 - .09	0.3 - 1.0	.04 - .10	0.3 - 0.9	.16 - .37	<.01 - .03	3 - 5	8 - 24
Jun	0.7 - 1.9	.03 - .10	0.3 - 0.6	.05 - .10	0.3 - 0.8	.16 - .25	<.01 - .03	2	11 - 17
Jul	0.7 - 2.0	.02 - .06	0.2 - 0.8	.05 - .09	0.3 - 0.5	.14 - .25	.01 - .05	2 - 4	26
Aug	0.6 - 1.2	.01 - .04	0.2 - 0.5	.03 - .09	0.3 - 0.6	.11 - .18	.02 - .04	2 - 3	11 - 14

REGION: CU, DD, DN
COMMENTS: May: April Fe 28; Mn53

SPECIES: *Aeschynomene paniculata*
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.8	.13	1.0	.15	0.4	.32	<.01	6	19
Oct	2.2 - 4.3	.06 - .15	0.6 - 1.5	.05 - .31	0.3 - 0.7	.34 - .35	.01 - .03	4 - 10	14
Nov									
Dec									
Jan									
Feb									
Mar	3.5	.18	0.7	.19	0.9	.55	.01	8	32
Apr									
May	3.1	.18		.21 - .27	1.0			8 - 10	35 - 43
Jun									
Jul	2.5	.17	0.8	.17 - .26	0.8	.40	.01	10	40
Aug									

REGION: CU, DN

SPECIES: *Aeschynomene villosa*
COMMON NAME: Villose jointvetch
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar									
Apr	2.0 - 2.6	.11 - .16	0.6 - 1.1	.13 - .17			<.01 - .02	5 - 7	25 - 47
May	1.5 - 2.2	.05 - .13	0.4 - 1.2	.05 - .16	0 .2 - 0.8	.16 - .47		3 - 7	23 - 50
Jun	1.9 - 2.3	.09 - .11	0.6 - 1.1	.12 - .15	1.1 - 1.4	.37 - .43	<.01		26 - 52
Jul									
Aug	1.7	.10	.4	.17	1.1		.01	8	45

REGION: CU, DN

SPECIES: *Alysicarpus vaginalis*
COMMON NAME: Buffalo clover, Alyce clover
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.9 - 1.3	.05 - .07	0.8 - 0.9	.05	0.9 - 1.3	.16 - .27	<.01 - .04	3 - 7	17 - 26
Oct	0.8	.03	0.4	.05	1.3	.23	.01	4	17
Nov	3.0 - 3.2	.15 - .25	0.9 - 2.1	.22	1.2 - 1.7	.38 - .51	<.01 - .01	8 - 10	39 - 50
Dec	2.6 - 3.1	.17 - .32	1.4 - 2.8	.19 - .28	0.7 - 1.4	.35 - .62	.01	7 - 10	31 - 44
Jan	1.2 - 3.5	.11 - .20	1.2 - 2.3	.17 - .24	0.9 - 1.6	.38 - .43	<.01 - .01	7 - 11	16 - 57
Feb	1.1 - 4.0	.12 - .25	0.9 - 3.1	.15 - .27	1.0 - 1.6	.30 - .57	<.01 - .03	6 - 9	16 - 53
Mar	1.8 - 3.6	.11 - .29	0.8 - 2.9	.11 - .26	1.0 - 1.7	.24 - .46	<.01 - .01	5 - 11	18 - 59
Apr	0.6 - 2.4	.07 - .27	0.9 - 2.9	.07 - .21	1.0 - 1.6	.19 - .49	<.01 - .01	4 - 8	18 - 36
May	1.3 - 1.8	.06 - .15	0.5 - 1.2	.07 - .17	1.2 - 1.8	.16 - .49	<.01 - .02	5 - 8	25 - 40
Jun	0.8 - 1.5	.06 - .09	0.3 - 0.8	.07 - .22	0.5 - 1.3	.16 - .37	<.01 - .02	4 - 8	18 - 29
Jul	0.7-1.4	.03-.08	0.3 - 1.1	.05 - .14	0.7 - 1.4	.17 - .39	<.01	5 - 7	23 - 27
Aug	0.8-1.2	.03-.06	1.1 - 1.5	.13	1.0 - 1.5	.25 - .39	.01 - .03	5 - 6	15 - 34

REGION: CU, DD, DN, KN, VR
COMMENTS: Apr: B 19; Fe 179; Mn 49; Mo 1; C1 42
Jan: Mo <.8

SPECIES: *Alysicarpus vaginalis*
COMMON NAME: Buffalo clover, Alyce clover
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	3.8	.19	2.0	.21	1.2	.32	.01	8	27
Apr									
May									
Jun									
Jul									
Aug									

REGION: DN

SPECIES: *Arachis glabrata*
COMMON NAME: Forage peanut
CULTIVAR: Prine
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.4	.11	1.5	.14				5	
Oct	2.3	.15	1.4	.23	1.5	.68		6	
Nov	3.0	.18	2.0	.20	1.2	.96	.02	6	70
Dec	2.0	.22	2.2	.20	1.0	.64	<.01	6	
Jan	1.4 - 2.1	.08 - .25	0.7 - 2.0	.10 - .21	1.0 - 1.8	.83	<.01 - .01	4 - 6	
Feb	1.8	.23	1.8	.17	1.0	.55	<.01	5	
Mar	1.9 - 2.4	.14 - .25	0.9 - 1.8	.11 - .27	1.0 - 2.0	.56	<.01	4 - 9	16 - 47
Apr	1.9 - 2.4	.14 - .22	0.8 - 1.9	.16 - .27	0.9 - 2.0	.56 - .80	<.01 - .01	4 - 7	32 - 50
May	1.8	.18	1.0	.14	1.2	.71	<.01 - .01	5	21
Jun	1.8	.11	0.9	.11	1.4	.89	<.01	3	
Jul	1.8	.13	1.0	.11	1.6	.94	<.01	4	
Aug	1.7	.10	1.0	.14	2.0	.76	<.01	3	

REGION: DN
COMMENT: Fe: Jan 156 - 271; Mar 209 - 293; Apr 101 - 215

SPECIES: *Calopogonium mucuniodes*
COMMON NAME: Calopo
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.2 - 1.6	.06 - .08	1.1 - 1.3		0.9 - 1.0				
Oct	1.2 - 1.3	.08 - .11	0.4 - 1.0	.09	0.7 - 0.9			6	23
Nov	0.9	.03	0.4		0.7				
Dec	2.8	.19	2.5		0.7				
Jan	2.6 - 3.9	.18 - .30	1.5 - 2.7	.17 - .21	0.6 - 0.7			8 - 9	19 - 27
Feb	2.0 - 2.6	.12 - .17	1.9 - 2.1		0.4 - 0.8				
Mar	2.1 - 2.5	.12 - .16	1.4 - 2.0	.16	0.5 - 0.9	.40	<.01	7	11
Apr	1.2 - 2.3	.10 - .21	1.7 - 2.7	.04 - .16	0.6 - 0.9	.27 - .48		8	19 - 67
May	1.4 - 2.3	.07 - .20	1.1 - 1.6	.04 - .11			.01	5	
Jun	1.0 - 2.3	.07 - .15	0.2 - 1.6	.09	0.8 - 1.1				
Jul	1.5 - 1.8	.07 - .11	1.0 - 1.3	.10	1.1 - 1.2			6	16
Aug	1.2 - 2.1	.06 - .12	1.1 - 1.6		0.5 - 1.2				

REGION: AR, CU, DD
COMMENTS: Apr: Fe: 75 - 146; Mn 77 - 227

SPECIES: *Calopogonium mucunoides*
COMMON NAME: Calopo
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.5 - 2.6	.06 - .19	1.0 - 1.7	.09 - .12	1.3 - 1.6				
Oct	1.4 - 4.2	.07 - .14	0.8 - 1.5	.14	0.4 - 1.5				
Nov	1.3 - 4.2	.08	1.7		0.6				
Dec	2.8 - 5.9	.20 - .36	1.5 - 3.3	.17	0.4 - 1.4				
Jan	2.6 - 4.3	.11 - .26	1.1 - 2.7	.08	0.4 – 0.8				
Feb	2.4 - 4.3	.14 - .29	1.4 - 2.7	.18	0.5 - 0.8				
Mar	1.8 - 4.3	.09 - .24	1.2 - 2.4	.12	0.4 - 0.8				
Apr	3.1 - 4.1	.15 - .27	0.8 - 1.7	.04 - .08					
May	2.2 - 3.4	.09 - .19	0.7 - 1.5	.10 - .14					
Jun	1.5 - 3.4	.07 - .20	0.5 - 1.6		1.0 - 2.0				
Jul	1.5 - 2.6	.07 - .15	0.5 - 1.6	.12	1.5 - 2.0				
Aug	1.4 - 3.0	.07 - .20	0.8 - 1.8	.08 - .09	1.0 - 1.7				

REGION: AR

SPECIES: *Calopogonium mucunoides*
COMMON NAME: Calopo
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1 - 1.4	.05 - .09	1.2 - 1.5		0.7 - 0.8				
Oct	0.9	.04	0.9 - 1.7		0.7				
Nov	0.7	.02	0.2		0.5				
Dec	1.5 - 2.4	.12 - .27	4.7 - 5.7		0.6 - 2.1				
Jan	1.2 - 1.9	.08 - .21	3.0 - 3.9		0.4				
Feb	1.0 - 1.6	.07 - .15	1.8 - 2.8		0.4 - 0.7				
Mar	1.1 - 1.7	.08 - .15	1.6 - 2.4		0.5				
Apr	1.4 - 2.1	.10 - .14	1.3 - 2.4						
May	1.5 - 1.7	.10 - .14	1.2 - 1.5						
Jun	0.8 - 1.8	.06 - .15	0.8 - 1.5		0.7 - 0.8				
Jul	1.0 - 1.6	.07 - .12	0.9 - 1.5		0.8 - 0.9				
Aug	1.0 - 1.4	.06 - .15	1.0 - 1.5		0.6 - 0.7				

REGION: AR

SPECIES: *Canavalia ensiformis (*syn *gladiata)*
COMMON NAME: Jack bean, Sword bean
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan	3.0 - 5.4	.31 - .53	1.9 - 3.2		1.6 - 3.1	.21 - .32		6 - 7	44 - 46
Feb	4.9 - 5.3	.33 - .45	2.6 - 3.0		1.7 - 2.2	.23 - .28		7 - 9	28 - 42
Mar									
Apr	2.5 - 2.8	.09 - .10	1.9 - 2.1						
May	2.5 - 2.8	.19 - .23	1.7 - 2.2						
Jun									
Jul									
Aug									

REGION: DD, DN, KN
COMMENTS: Fe: Jan: 140 - 210; Feb 210 - 240
Mn: Jan: 54 - 160; Feb 120 - 280

SPECIES: *Cathormion umbellatum*
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct	2.5	.24	1.3	.17	0.2	.19		5	29
Nov									
Dec									
Jan									
Feb									
Mar									
Apr	2.4	.11	1.1	.20	0.9	.17	.08	6	12
May									
Jun									
Jul									
Aug									

REGION: CU, FL
COMMENTS: Oct: Fe 48
Dead leaf: Oct: N 1.4; P .04; K .9; S .15; Ca .5; Mg .22; Cu 7; Zn 7
Pods and Seed: Oct: 2.7; P .15; K 1.8; S .17; Ca .2; Mg .16; Cu 9; Zn 14; Fe 61

SPECIES: *Centrosema brasilianum*
COMMON NAME: Centro
CULTIVAR: Oolloo
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1 - 2.0	.09 - .10	0.7 - 1.0	.06 - .10	1.7 - 1.9	.38 - .55	<.01	6 - 7	9 - 16
Oct	1.5 - 2.1	.05 - .10	0.7 - 1.2	.03 - .13	0.8 - 2.3	.33 - .52	<.01 - .06	5 - 7	3 - 7
Nov	1.9 - 2.8	.08 - .24	0.8 - 1.5	.07 - .19	0.8 - 2.0	.18 - .57	<.01 - .03	8 - 11	17 - 25
Dec	1.4 - 3.1	.09 - .29	0.7 - 1.9	.12 - .19	0.9 - 1.4	.32 - .46	<.01 - .01	7 - 13	14 - 29
Jan	1.8 - 2.7	.08 - .26	0.8 - 2.0	.11 - .20	0.6 - 1.8	.19 - .57	<.01 - .02	6 - 11	10 - 31
Feb	2.0 - 2.8	.09 - .22	0.5 - 1.6	.16 - .21	0.7 - 1.6	.29 - .49	<.01 - .04	5 - 11	13 - 35
Mar	1.8 - 2.7	.09 - .23	0.7 - 1.6	.11 - .21	0.6 - 1.7	.26 - .45	<.01 - .05	5 - 11	14 - 21
Apr	1.6 - 2.6	.08 - .24	0.6 - 1.7	.08 - .19	0.5 - 1.4	.18 - .65	<.01 - .07	5 - 10	13 - 33
May	1.1 - 2.8	.05 - .22	0.3 - 1.7	.05 - .23	0.4 - 1.5	.20 - .55	<.01 - .06	2 - 8	8 - 36
Jun	1.5 - 2.1	.07 - .15	0.5 - 1.0	.09 - .16	0.5 - 1.0	.17 - .54	<.01 - .03	4 - 7	10 - 37
Jul	1.1 - 2.1	.05 - .14	0.5 - 1.2	.06 - .13	0.5 - 2.2	.31 - .47	<.01 - .04	3 - 7	9 - 34
Aug	0.9 - 1.7	.03 - .10	0.4 - 1.1	.06 - .11	0.7 - 2.3	.18 - .51	<.01 - .02	5 - 7	9 - 19

REGION: CU, DD, DN, KN

SPECIES: *Centrosema brasilianum*
COMMON NAME: Centro
CULTIVAR: Oolloo
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec		637			
Jan	21	274 - 618		<.8	
Feb					
Mar					
Apr	16 - 24	110 - 215	91 - 102	<.8	
May		100 - 280	69 - 91	<.8	
Jun					
Jul					
Aug					

REGION: CU, DD, DN, KN

SPECIES: *Centrosema brasilianum*
COMMON NAME: Centro
CULTIVAR: Oolloo
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.0	.09	0.7	.13	0.9	.61	.01	5	18
Oct	1.8 - 3.5	.10 - .21	0.6 - 1.6	.05 - .22	0.5 - 1.0	.44 - .52	<.01 - .02	5 - 8	16 - 20
Nov									
Dec									
Jan									
Feb									
Mar	3.2	.25	1.6	.25	0.7	.42	.04	11	
Apr									18
May	3.0	.10	0.6	.23	1.3	.88	.02	7	
Jun	2.2	.12	0.4	.17	1.7	.55	.02	5	15
Jul									
Aug	1.0	.12	1.2	.16	2.4	.57	<.01	10	10

REGION: CU, DD, DN
COMMENTS: Stem: Mar: N 1.7; P 1.8; K 1.6; S .13; Ca .4; Mg .17; Na .05; Cu 10

SPECIES: *Centrosema pascuorum*
COMMON NAME: Centurion, Centro
CULTIVAR: Bundey, Cavalcade
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.9 - 1.7	.03 - .09	0.3 - 2.0	.04 - .13	0.8 - .20	.28 - .48	.01 - .04	3 - 7	5 - 16
Oct	0.8 - 1.4	.03 - .06	.9 -1.2	.07 - .08	1.8	.39	.01	5	5 - 7
Nov	0.9 - 3.6	.07 - .34	1.0 - 2.6	.07 - .26	0.3 - 1.3	.16 - .45	<.01	9 - 12	14 - 35
Dec	2.3 - 3.8	.12 - .35	1.1 - 2.7	.14 - .35	0.8 - 1.9	.21 - .53	<.01 - .03	6 - 11	15 - 37
Jan	1.9 - 3.1	.11 - .29	0.8 - 2.4	.07 - .32	0.8 - 1.8	.28 - .48	<.01 - .02	4 - 11	18 - 37
Feb	1.7 - 3.6	.08 - .33	0.4 - 3.2	.09 - .26	0.8 - 1.6	.24 - .49	<.01 - .02	3 - 8	11 - 33
Mar	1.3 - 3.2	.04 - .23	0.4 - 3.1	.05 - .26	0.8 - 1.7	.13 - .48	<.01 - .02	4 - 11	11 - 29
Apr	1.3 - 2.9	.04 - .22	0.4 - 2.3	.03 - .20	0.6 - 1.9	.16 - .51	<.01 - .02	1 - 11	7 - 35
May	1.2 - 2.5	.04 - .21	0.5 - 2.5	.04 - .19	0.5 - 2.0	.12 - .50	<.01 - .02	1 - 11	5 - 37
Jun	1.2 - 2.2	.04 - .22	0.5 - 1.8	.04 - .21	0.7 - 2.0	.15 - .49	<.01 - .02	2 - 9	5 - 22
Jul	0.9 - 1.8	.04 - .12	0.7 - 1.6	.06 - .13	0.6 - 2.0	.24 - .51	<.01 - .05	3 - 6	4 - 21
Aug	1.1 - 1.8	.03 - .14	0.5 - 2.1	.08 - .13	0.8 - 2.0	.24 - .45	<.01	3 - 7	5 - 17

REGION: AR, CU, DD, DN, KN
COMMENTS: Seed: May N 4.5 - 5.0; P 30 - 52; K 1.1 - 1.4; S .08 - .10; Ca .29; Mg 18 - 21; Cu 9 - 10, Zn 25 - 32; B 8 - 9; Mn 22 - 23

SPECIES: *Centrosema pascuorum*
COMMON NAME: Centurion, Centro
CULTIVAR: Bundey, Cavalcade
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov			106 - 151		
Dec	15 - 26	143 - 802	72 - 98		
Jan	14 - 23	738		< 1 - .2	
Feb	19 - 23	119	60 - 148	< 1 - .2	.51
Mar	16 - 27	74 - 450	118 - 220	.2 - 1.8	
Apr	18 - 28	129 - 295	101 - 174	<.2 - 2.5	
May	8 - 28	108 - 738	120 - 228	.2 - 1.7	
Jun	14 - 21		91 - 94		
Jul	15		140		
Aug		229 - 355	128 - 164		

REGION: CU, DD, DN, KN

SPECIES: *Centrosema pascuorum*
COMMON NAME: Centurion, Centro
CULTIVAR: Bundey, Cavalcade
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1 - 1.9	.04 - .08	0.3 - 1.0	.07 - .11					
Oct									
Nov									
Dec	2.9 - 3.1	.18 - .24							
Jan									
Feb	1.8 - 2.9	.13 - .26							
Mar	2.8 - 2.9	.16 - .17	2.1	.17	1.3	.40	<.01	6	17
Apr	1.7 - 2.7	.11 - .19	1.1		1.4	.53	<.01	8	34
May	1.8 - 2.6	.09 - .17	0.5 - 0.9	.16 - .19	1.2 - 1.8	.59	.01 - .02	3 - 4	14 - 18
Jun	0.8 - 2.6	.06 - .13	0.7 - 0.9	.15 - .21					
Jul	0.9 - 2.1	.04 - .15	0.6 - 0.9	.18 - .22					
Aug	1.1 - 1.6	.03 - .05	0.9 - 1.1	.11 - .13					

REGION: AR, DD
COMMENTS: Youngest fully expanded leaf: Feb: N 4.2 - 4.9; P .33 - .44; K 2.6 - 3.1; S .26 - .32; Ca 1.2 - 1.4; Mg .33 - .37; Cu 9 - 12; Zn 28 - 49; Mn: 70 - 77; B: 19 - 23

SPECIES: *Centrosema pascuorum*
COMMON NAME: Centurion, Centro
CULTIVAR: Bundey, Cavalcade
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.6 - 1.1	.03 - .07	0.6 - 0.8	.05 - .10					
Oct									
Nov									
Dec									
Jan									
Feb	1.1	.09							
Mar	1.1 - 1.4	.09 - .11	2.3	.08	0.7	.26	<.01	6	20
Apr	0.8 - 1.0	.07 - .13							
May									
Jun									
Jul									
Aug									

REGION: AR, DD

SPECIES: *Centrosema plumieri*
COMMON NAME: Feefee
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	3.7	.38	3.3	.23		.48	.02	12	
Apr	1.7 - 2.4	.09 - .19	1.2 - 2.5	.08 - .14	1.0 - 1.3	.27 - .35	<.01 - .01	7 - 12	18 - 29
May	1.6 - 2.2	.06 - .13	1.5 - 2.0	.11 - .18	1.6 - 2.2	.35 - .37	<.01 - .01	8	19 - 47
Jun	2.2 - 2.4	.11 - .15	1.1 - 1.6	.19	0.7	.45	.01		27 - 40
Jul									
Aug									

REGION: AR, CU, DD, DN

SPECIES: *Centrosema pubescens*
COMMON NAME: Centro
CULTIVAR: Common
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.0 - 1.9	.04 - .13	0.3 - 1.1	.13	0.4	.22	.02 - .04	4 - 10	35
Oct	2.1 - 2.6	.09 - .11	1.3 - 1.5	.06 - .10	0.5 - 1.4	.38 - .39	<.01 - .05	6 - 10	21 - 38
Nov	1.8 - 3.4	.09 - .23	0.8 - 1.6	.11 - .22	0.6 - 0.9	.28 - .41	.01 - .07	9 - 14	58
Dec	2.3 - 3.0	.11 - .21	1.4 - 1.8	.22 - .26	0.7 - 1.0	.32 - .36	.01 - .05	12	
Jan	2.4 - 3.2	.17 - .23	1.6 - 2.2	.12 - .24	0.6 - 1.5	.32 - .40	<.01 - .01	10-16	27 - 44
Feb	2.4 - 4.4	.17 - .25	1.0 - 1.8	.13 - .24	0.6 - 1.0	.25 - .38	<.01 - .03	4 - 15	38 - 47
Mar	2.3 - 3.5	.20 - .26	0.9 - 1.6	.10 - .22	0.8 - 1.0	.25 - .35	<.01 - .05	6 - 12	20 - 27
Apr	1.7 - 2.6	.10 - .20	0.8 - 1.8	.09 - .21	0.6 - 1.6	.19 - .39	<.01 - .01	6 - 14	16 - 36
May	1.5 - 2.5	.08 - .16	0.5 - 1.6	.11 - .19	0.6 - 1.6	.19 - .49	<.01 - .03	4 - 11	18 - 49
Jun	1.5 - 2.9	.08 - .16	0.4 - 1.3	.11 - .17	0.6 - 1.0	.26 - .49	<.01 - .01	4 - 10	16 - 35
Jul	1.7 - 2.0	.09 - .12	0.4 - 1.6	.11 - .14	0.4 - 1.1	.28 - .30	<.01 - .03	4 - 9	15 - 30
Aug	1.1 - 2.2	.06 - .13	1.3	.06 - .16	0.7 - 1.5	.22 - .48	<.01 - .03	4 - 6	9 - 34

REGION: AR, CU, DD, DN
COMMENTS: Leaf/Regrowth: Oct: N 2.7 - 4.2; P .11 - .22; K .9 - 1.8; S .05 - .24; Ca .2; Mg .57; Na .02; Cu 9 - 11; Zn 11 - 48
Mo: Mar 1

SPECIES: *Chamaecrista pilosa*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan	1.6	.20	1.5	.19	0.8	.33	.01	5	20
Feb	2.4 - 3.4	.13 - .17	0.9 - 1.3	.14 - .18	0.6	.25	.01	7	15 - 19
Mar	3.3	.26	1.4	.24	0.8	.43	.01	11	24
Apr	1.4 - 2.4	.04 - .17	0.4 - 1.1	.05 - .17	0.8	.39	.01	9	9 - 19
May	1.5 - 2.1	.12 - .14	0.7 - 1.1	.11 - .14	0.4 - 0.9	.23 - .37	<.01	7 - 8	17 - 26
Jun	1.5	.09	0.6	.09	0.6	.29	<.01	5	8
Jul									
Aug									

REGION: DN

SPECIES: *Chamaecrista rotundifolia*
COMMON NAME: Round-leafed cassia
CULTIVAR: Wynn
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.1 - 1.7	.03 - .10	0.2 - 0.9	.06 - .13	0.6 - 1.6	.21 - .52	<.01 - .01	2 - 5	5 - 15
Oct	1.1 - 3.2	.08 - .13	0.6 - 1.2	.09 - .18	0.5 - 1.5	.23 - .38	<.01 - .01	3 - 8	8 - 21
Nov	2.4 - 3.4	.13 - .27	0.8 - 1.4	.11 - .19	0.6 - 1.0	.22 - .46	<.01 - .02	7 - 12	20 - 35
Dec	1.9 - 3.5	.16 - .36	1.0 - 2.2	.17 - .30	0.8 - 1.7	.31 - .52	<.01 - .01	5 - 12	18 - 34
Jan	1.9 - 3.3	.11 - .32	1.1 - 1.9	.13 - .25	0.8 - 1.5	.27 - .46	<.01 - .02	6 - 10	17 - 30
Feb	1.7 - 2.5	.10 - .26	0.8 - 1.7	.12 - .27	0.7 - 1.5	.26 - .55	<.01 - .01	4 - 9	17 - 25
Mar	1.3 - 3.1	.08 - .22	0.9 - 1.6	.12 - .21	0.7 - 1.4	.26 - .54	<.01 - .02	4 - 8	14 - 28
Apr	1.3 - 2.7	.08 - .19	0.4 - 1.5	.09 - .21	0.5 - 1.4	.23 - .47	<.01 - .01	3 - 7	11 - 21
May	1.2 - 2.2	.07 - .20	0.3 - 1.2	.06 - .18	0.6 - 1.5	.23 - .42	<.01 - .02	3 - 7	7 - 31
Jun	1.1 - 2.1	.06 - .20	0.4 - 1.0	.06 - .15	0.6 - 1.7	.21 - .43	<.01 - .01	2 - 6	8 - 17
Jul	0.9 - 1.6	.03 - .16	0.3 - 1.0	.07 - .17	0.5 - 1.5	.22 - .45	<.01 - .02	2 - 6	5 - 15
Aug	0.9 - 1.7	.04 - .14	0.4 - 0.9	.05 - .13	0.5 - 1.5	.16 - .57	<.01 - .02	2 - 5	5 - 19

REGION: CU, DD, DN, KN

SPECIES: *Chamaecrista rotundifolia*
COMMON NAME: Round-leafed cassia
CULTIVAR: Wynn
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov			222		
Dec		222 - 522		<.8	
Jan				< .1 - .2	
Feb				< .1 - .3	
Mar	17 - 18				
Apr	16 - 22	335 - 830	192 - 224	<.8	
May	18 - 22		224		
Jun	18 - 22				
Jul					
Aug			178		

REGION: CU, DD, DN, KN

SPECIES: *Chamaecrista rotundifolia*
COMMON NAME: Round-leafed cassia
CULTIVAR: Wynn
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.3	.07	0.6	.14				5	29
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	3.1	.26	1.4	.26	1.0	.30	.04	10	
Apr									
May	1.7 - 2.4	.11 - .14	0.5 - 0.9	.12	1.0 - 1.2	.34 - .41	<.01	3 - 5	17 - 35
Jun	2.1	.07	0.4	.11	0.7	.59	<.01	3	18
Jul	1.2 - 1.4	.06 - .11	0.3 - 0.8	.10 - .15	0.6 - 0.8	.24 - .44	<.01 - .01	2 - 6	13 - 21
Aug	2.2	.07	1.2	.05	1.3			3	10

REGION: CU, DN

SPECIES: *Chamaecrista rotundifolia*
COMMON NAME: Round-leafed cassia
CULTIVAR: Wynn
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	0.7	.13	1.1	.12	0.4	.18	.03	5	
Apr									
May									
Jun									
Jul	0.9	.06	0.5	.16	0.6	.37	.01	4	10
Aug									

REGION: CU, DN

SPECIES: *Clitoria ternatea*
COMMON NAME: Blue pea, Butterfly pea
CULTIVAR: Milgarra
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.4 - 2.6	.07 - .29	1.1 - 1.7	.07 - .17	0.7	.65	<.01 - .01	4 - 7	9 - 12
Oct	1.6 - 2.7	.05 - .21	1.2 - 2.2	.06 - .25	0.6 - 1.2	.30 - .59	<.01 - .01	4 - 10	7 - 32
Nov	3.0 - 3.6	.10 - .34	1.4 - 1.6	.14 - .25	0.4 - 0.7	.70 - .71	.01 - .02	7 - 9	22 - 40
Dec	2.8 - 4.2	.14 - .44	1.4 - 3.5	.25 - .48	0.4 - 1.0	.38 - .80	<.01 - .03	6 - 16	29 - 53
Jan	2.3 - 3.9	.20 - .42	2.0 - 2.6	.18 - .35	0.4 - 0.9	.33 - .67	<.01 - .03	6 - 10	33 - 58
Feb	2.0 - 3.2	.13 - .31	1.5 - 3.1	.20 - .34	0.5 - 0.8	.41 - .62	<.01 - .03	7 – 15	29 - 43
Mar	1.5 - 3.2	.15 - .39	1.5 - 2.9	.23 - .31	0.5 - 1.0	.39 - .72	<.01 - .05	5 – 13	25 - 48
Apr	1.6 - 3.1	.09 - .29	1.3 - 2.5	.07 - .29	0.4 - 0.9	.27 - .72	<.01 - .04	5 – 13	11 - 40
May	1.4 - 2.9	.09 - .20	1.2 - 2.9	.07 - .24	0.5 - 1.0	.35 - .66	<.01 - .04	5 - 10	12 - 40
Jun	1.4 - 2.4	.08 - .18	1.5 - 2.1	.10 - .23	0.4 - 0.9	.27 - .71	<.01 - .01	5 - 10	9 - 36
Jul	1.1 - 2.5	.10 - .14	1.1 - 2.3	.17 - .31	0.5 - 0.7	.28 - .68	<.01 - .01	4 - 10	11 - 30
Aug	1.1 - 2.3	.04 - .15	1.2 - 2.2	.09 - .24	0.5 - 1.0	.28 - .65	<.01 - .01	4 - 12	

REGION: AR, CU, DD, DN, FL, KN

SPECIES: *Clitoria ternitea*
COMMON NAME: Blue pea, Butterfly pea
CULTIVAR: Milgarra
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec	19	92 - 562			
Jan	20	185 - 262			
Feb					
Mar					
Apr	15 - 16	126 - 320		1.6	
May		320	182	<.8 - 1.6	
Jun					
Jul					
Aug					

REGION: AR, CU, DD, DN, FL, KN

SPECIES: *Clitoria ternatea*
COMMON NAME: Blue pea, Butterfly pea
CULTIVAR: Milgarra
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	3.4 - 5.7	.35 - .47	1.8 - 2.9	.37 - .45	0.7 - 1.3	.63 - .79	<.01	14 - 17	63 - 78
Apr									
May	3.2	.12	0.9	.32	0.7	1.32	.04	5	23
Jun	4.3	.24	2.7	.31	1.2	.88	<.01	10	74
Jul	2.8	.15	1.0	.33	0.7	.32	.05	4	28
Aug	2.5 - 2.8	.10 - .18	1.1 - 2.2	.24 - .28	0.8 - 1.6	.61	<.01 - .01	9 - 10	11 - 13

REGION: DD, DN

SPECIES: *Clitoria ternatea*
COMMON NAME: Blue pea, Butterfly pea
CULTIVAR: Milgarra
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	1.3 - 2.0	.12 - .26	1.0 - 2.4	.12 - .15	0.3 - 0.9	.23 - .26	<.01	9 - 12	19 - 35
Apr									
May									
Jun	1.6	.13	2.0	.12	0.4	.21	<.01	7	51
Jul									
Aug									

REGION: DD, DN

SPECIES: *Crotalaria goreensis*
COMMON NAME: Gambia pea
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec	3.2	.23	2.3	.22	0.9	.47	.02	8	39
Jan	2.8	.23	0.9	.14	0.5	.69	.01	7	22
Feb	2.9	.29	1.6	.15	0.7	.48	<.01	7	
Mar	2.6	.13	0.5	.14	1.0	.91	<.01	10	43
Apr									
May	2.3	.11	1.6	.12	1.1	.33	.01	6	12
Jun									
Jul									
Aug									

REGION: CU, DD, DN

SPECIES: *Dendrolobrum umbellatum*
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec	2.5	.17	1.3	.18	1.1	.41	.01	4	25
Jan	2.2	.22	1.5	.19	0.8	.28	<.01	4	39
Feb	3.0	.25	1.5	.23	0.9	.29	<.01	9	36
Mar	2.5	.21	1.3	.19	1.1	.27	.03	7	45
Apr	2.4	.16	1.3	.17	1.0	.26	<.01	5	33
May	2.7	.17	1.3	.18	1.1	.25	<.01	5	27
Jun									
Jul									
Aug									

REGION: DN

SPECIES: *Desmodium* sp *(polyneurum)*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	2.2								
Dec	1.5 - 1.7	.10 - .12	1.0 - 1.7						
Jan	2.9	.13	1.2	.22	0.7	.27	.12	6	21
Feb									
Mar	2.4	.11	0.8	.15	0.9	.17	.03	6	16
Apr	1.7 - 1.9	.04 - .09							
May	2.1								
Jun	1.4 - 1.5	.08 - .10							
Jul	1.4 - 1.6	.07 - .08							
Aug									

REGION: CU, DD

SPECIES: *Gliricidia sepium (*syn *maculata)*
COMMON NAME: Gliricidia
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	3.2 - 4.0	.29 - .30	2.8 - 3.1	.15 - .29	1.0 - 1.7	.48 - .54	.03 - .05	3	26 - 31
Oct	3.0 - 3.3	.19 - .22	1.8 - 2.1	.14 - .23	0.7 - 1.2	.42 - .43	.04 - .05	2	16
Nov	2.9 - 3.6	.22 - .25	2.3 - 3.0	.25 - .26	1.2 - 1.3	.57 - .75	.04 - .05	2	14 - 19
Dec	2.7 - 3.6	.20 - .24	2.1 - 2.5	.27 - .28	1.4 - 1.6	.60 - .89	.06 - .10	2	13 - 14
Jan	2.6 - 2.8	.15 - .19	1.3 - 1.7	.21 - .25	1.4 - 2.4	.86	.09 - .14	2 - 3	12 - 18
Feb	2.8 - 2.9	.14 - .21	1.2 - 2.0	.19 - .23	0.7 - 1.3	.45 - .82	.03 - .09	2 - 5	19 - 26
Mar	2.8 - 3.4	.17 - .29	1.2 - 2.6	.21 - .30	1.2 - 1.8	.61 - .79	<.01 - .25	3 - 4	16 - 19
Apr	2.8 - 3.2	.17 - .21	1.2 - 1.9	.21 - .25	0.9 - 1.8	.53 - .85	<.01 - .05	3 - 4	14 - 16
May	3.2 - 3.5	.20 - .26	1.6 - 3.2	.23 - .25	0.8 - 0.9	.36 - .63	<.01 - .01	3 - 4	14 - 16
Jun	2.3 - 2.9	.18 - .19	1.7 - 2.3	.21 - .27	0.9 - 1.5	.37 - .69	.01 - .02	2 - 4	14 - 16
Jul	2.7 - 2.9	.18 - .22	1.8 - 2.1	.21 - .22	1.5 - 2.1	.64 - .72	.03 - .04	3 - 5	22
Aug	2.6 - 3.1	.15 - .20	1.3 - 2.2	.17 - .23	1.6 - 2.0	.32 - .69	.03	2 - 3	10 - 17

REGION: CU, DN

SPECIES: *Gliricidia sepium (*syn *maculata)*
COMMON NAME: Gliricidia
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	2.3	.17	1.0	.16	1.3	.59			
Mar	3.3	.26	2.0	.30	1.2	.59	.03	3	13
Apr									
May									
Jun									
Jul	3.9	.21	2.3	.26	1.4	.47	<.01	3	16
Aug									

REGION: DN
COMMENTS: Stem: Mar: N 2.5; P .22; K 1.8; S .24; Ca 1.0; Mg .43; Na .03; Cu 9; Zn 60

SPECIES: *Glycine max*
COMMON NAME: Soybean
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan	2.4	.31	2.8	.18	1.4	.41	< .01	.12	20
Feb	2.5 - 2.7	.19 - 2.7		.16 - .19					23 - 32
Mar									
Apr									
May									
Jun									
Jul									
Aug									

REGION: DD, KN
COMMENTS: Leaf: Feb: N 4.0 - 4.6; P 23 - .37; S .19 - .23

SPECIES: *Indigofera linnaei*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	2.7	.20							
Dec	2.0	.14							
Jan	2.4	.20							
Feb	2.8	.16							
Mar									
Apr									
May									
Jun	1.2 - 2.5	.08 - .17							
Jul									
Aug									

REGION: VR

SPECIES: *Lablab purpureus*
COMMON NAME: Lablab
CULTIVAR: Highworth, Rongai
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.8 - 1.4	.05 - .11	2.0 - 2.2		0.9 - 2.1	.12 - .25	<.02		
Oct									
Nov									
Dec									
Jan	3.0	.43	2.4	.23	1.1	.24	<.01	6	21
Feb	3.1 - 3.6	.24 - .44	2.1 - 2.3	.22 - .26	1.4 - 2.0	.23 - .34	<.01 - .02	5	15 - 20
Mar	2.7 - 4.0	.40 - .48	3.1 - 3.4	.23 - .28	1.2 - 1.7	.21 - .30	<.01	6	21 - 22
Apr	1.5 - 4.3	.26 - .39	2.9 - .32	.19 - .22	1.3 - 2.1	.25 - .33	<.01	5 - 6	18 - 24
May	1.7 - 3.5	.17	1.2	.08	0.4	.21	<.01	4	38
Jun	3.2								
Jul	2.1 - 2.9	.19 - .33	1.8 - 2.1		0.4 - 3.3	.31 - .37	<.05		
Aug									

REGION: DD, DW, KN
COMMENTS: Seed Pods: Jul: N 2.9; P .33; K 1.8; Ca .4; Mg .31; Na <.05

SPECIES: *Lablab purpureus*
COMMON NAME: Lablab
CULTIVAR: Highworth, Rongai
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec					
Jan					
Feb					
Mar					
Apr	26 - 30	56 - 182			
May					
Jun					
Jul					
Aug					

REGION: KN

SPECIES: *Lablab purpureus*
COMMON NAME: Lablab
CULTIVAR: Highworth, Rongai
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar									
Apr									
May									
Jun									
Jul	2.6	.31	1.5	1.6	0.5	<.05			
Aug	1.4	.09	2.4	2.3	0.2	< .01			

REGION: DD, DW

SPECIES: *Leucaena leucocephala*
COMMON NAME: Leucaena
CULTIVAR: El Salvador, Hawaiian, K8 Local, Peru, Cunningham
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.4 - 3.2	.10 - .13	0.6 - 1.5	.08 - .16	1.1 - 2.3	.23 - 1.06	<.01 - .03	5 - 8	17 - 26
Oct	2.2 - 4.5	.10 - .19	0.6 - 1.3	.07 - .32	1.4 - 2.3	.39 - 1.10	<.01 - .02	6 - 8	13 - 34
Nov	2.6 - 4.6	.09 - .34	1.4 - 1.9	.09 - .44	0.7 - 2.8	.40 - .62	.01 - .02	7 - 9	14 - 29
Dec	2.6 - 4.4	.12 - .23	1.1 - 1.7	.16 - .39	0.9 - 1.9	.26 - .65	.01 - .03	4 - 9	17 - 27
Jan	2.5 - 4.3	.12 - .26	1.5 - 1.6	.16 - .35	1.1 - 1.9	.28 - .51	<.01 - .01	5 - 7	15 - 37
Feb	2.7 - 4.6	.15 - .24	1.0 - 1.9	.21 - .33	0.9 - 2.0	.27 - .78	<.01 - .05	5 - 8	15 - 50
Mar	2.1 - 4.1	.14 - .22	1.3 - 1.7	.16 - .32	1.2 - 2.0	.34 - .60	<.01 - .02	4 - 9	15 - 36
Apr	2.2 - 3.6	.11 - .28	0.9 - 1.5	.17 - .37	1.0 - 1.8	.27 - .69	<.01 - .01	4 - 7	16 - 24
May	2.1 - 3.1	.12 - .20	0.6 - 1.4	.07 - .35	1.0 - 2.0	.21 - .64	<.01	4 - 8	12 - 44
Jun	2.3 - 3.4	.10 - .14	0.5 - 1.3	.12 - .24	1.6 - 2.0	.49 - .99	<.01 - .01	4 - 9	18 - 26
Jul	1.9 - 3.1	.10 - .14	0.5 - 1.6	.16 - .25	1.6 - 2.5	.39 - .99	<.01 - .01	4 - 7	12 - 24
Aug	1.9 - 2.5	.08 - .12	0.4 - 1.1	.11 - .18	1.6 - 2.6	.42 - 1.20	<.01 - .01	3 - 9	14 - 24

REGION: CU, DD, DN, KN
COMMENTS: Mar: Mo <.2 - 1.2

SPECIES: *Leucaena leucocephala*
COMMON NAME: Leucaena
CULTIVAR: El Salvador, Hawaiian, K8, Local, Peru, Cunningham
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	3.6 - 3.9	.07							
Oct	3.2 - 4.1	.17	1.7	.19	1.5	.30	.01	5	32
Nov	3.9 - 4.8								
Dec	4.4								
Jan	4.1								
Feb	3.9								
Mar	3.1 - 3.8	.17 - .18	1.7	.21	1.9	.45	<.01	15	22
Apr	3.2 - 3.5	.14 - .24	0.9 - 1.8	.27 - .44	0.6 - 1.0	.58 - .84	<.01 - .02	5 - 10	16 - 20
May	3.1 - 5.4	.13 - .23	1.5 - 1.8	.27 - .42	1.2 - 1.4	.15 - .95	<.01 - .01	7 - 8	12 - 20
Jun	2.1 - 3.4	.10 - .13	0.5 - 1.5	.17 - .20	1.7 - 2.2	.50 - 1.00	<.01	3 - 6	13 - 14
Jul	2.3 - 3.6	.09	0.4	.22		1.28	<.01	4	14
Aug	2.4 - 3.5								

REGION: CU, DD, DN

SPECIES: Leucaena leucocephala
COMMON NAME: Leucaena
CULTIVAR: El Salvador, Hawaiian, K8, Local, Peru, Cunningham
PLANT PART: Twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	1.5 - 1.8								
Dec									
Jan									
Feb									
Mar	1.2 - 1.6	.09 - .16	1.1 - 1.8	.08 - .26	0.4 - 0.8	.36 - .57	<.01 - .04	6 - 8	41 - 66
Apr	1.1	.15	1.7	.23	0.2	.25	.02	6	28
May									
Jun	1.3	.07 - .09	0.7 - 1.3	.07 - .18	0.6 - 0.8	.40 - .62	<.01 - .01	4 - 6	36 - 66
Jul	1.0	.05	0.6	.16	0.9	.67	<.01	3	58
Aug									

REGION: DD, DN

SPECIES: *Lysiphyllum cunninghamii*
COMMON NAME: Bauhinia
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.6 - 1.9	.07 - .12	1.2		2.0 - 3.0	.23	.01		
Oct	2.6	.20		.21	0.4				
Nov	1.7 - 2.4	.06 - .21	1.4 - 1.9	.17 - .19	0.5 - 1.9	.28 - .30	.01		
Dec	1.8 - 2.4	.11 - .15	1.4		1.7	.33	.01		
Jan	1.8	.11							
Feb	1.9 - 2.7	.11 - .20	1.3		2.2	.22	.01		
Mar	1.2 - 3.0	.06 - .22			2.4				
Apr	2.1 - 3.2	.05 - .22							
May	2.3 - 2.7	.10 - .13	1.1				.01		
Jun	2.2 - 2.3	.06 - .14			1.8	.25			
Jul	1.1 - 1.4	.07 - .10			2.1				
Aug	1.2 - 1.7	.06 -.14	1.5		1.4	.28	.01		

REGION: VR

SPECIES: *Macroptilium atropurpureum*
COMMON NAME: Purple bean, Siratro
CULTIVAR: Siratro
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.2 - 2.0	.06 - .12							
Oct	1.7 - 2.0	.07 - .13	1.0	.09	0.8	.49	.03	5	67
Nov	1.1	.09							
Dec	2.5 - 2.7	.14 - .22	2.1	.09 - .19	0.7 - 1.1	.47 - 1.1	.01 - .03	7 - 8	33 - 61
Jan	2.3	.20							
Feb	2.2 - 2.4	.13 - .17	1.1 - 1.3	.15 - .18	0.7 - 1.4	.35 - .45	<.01 - .02	5 - 7	69
Mar	1.7 - 2.7	.15 - .19	1.4	.17	0.9	.56	.05	5	
Apr	1.3 - 3.0	.11 - .29	0.9 - .29	.07 - .19	0.4 - 1.2	.19 - .58	.09	5 - 12	16 - 25
May	1.6 - 2.9	.16 - .29							
Jun	1.4 - 2.1	.07 - .11	1.2	.15	1.1	.41	.01	4	59
Jul	2.1	.14	1.1	.15	0.9	.35		5	
Aug	0.8 - 1.7	.09 - .19	1.7	.14	1.0	.37		8	32

REGION: AR, CU, DD, DN, DW
COMMENTS: Apr: Fe 53 - 165; Mn 60 - 152

SPECIES: *Macroptilium gracile*
COMMON NAME: Llanos macro
CULTIVAR: Maldonado
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.2 - 2.6	.04 - .13	0.5 - 1.4	.07 - .09	0.8 - 1.1	.34 - .64	.02 - .03	4 - 8	5 - 18
Oct	1.6 - 2.9	.06 - .22	0.5 - 1.9	.06 - .23	0.3 - 1.0	.34 - .58	.01 - .03	3 - 11	9 - 37
Nov	2.4 - 3.5	.12 - .19	1.1 - 1.9	.09 - .22	1.0 - 1.3	.50 - .71	<.01 - .01	4 - 10	18 - 36
Dec	2.5 - 3.9	.14 - .26	1.4 - 2.2	.18 - .30	0.7 - 1.4	.42 - .61	<.01 - .02	7 - 13	20 - 35
Jan	1.5 - 2.7	.11 - .24	0.5 - 2.1	.11 - .20	0.6 - .13	.32 - .64	<.01 - .03	4 - 9	12 - 25
Feb	1.6 - 2.4	.12 - .17	0.4 - .16	.09 - .14	0.5 - 1.1	.25 - .70	<.01 - .06	4 - 11	13 - 25
Mar	1.6 - 3.0	.10 - .26	0.4 - 1.9	.10 - .21	0.6 - 1.4	.28 - .63	<.01 - .02	3 - 9	14 - 30
Apr	1.6 - 3.0	.09 - .25	0.3 - 2.0	.09 - .21	0.6 - 1.5	.35 - .71	<.01 - .03	2 - 8	8 - 41
May	1.4 - 2.3	.08 - .19	0.5 - 2.0	.07 - .21	0.6 - 1.6	.21 - .68	<.01 - .02	3 - 8	7 - 40
Jun	1.6 - 2.0	.08 - .16	0.5 - 1.4	.06 - .14	0.5 - 1.2	.31 - .64	<.01 - .01	3 - 7	5 - 40
Jul	1.3 - 1.8	.04 - .16	0.4 - 1.5	.06 - .12	0.6 - 1.2	.33 - .61	<.01 - .02	4 - 6	4 - 18
Aug	1.2 - 1.5	.03 - .09	0.6 - 1.1	.06 - .11	0.9 - 1.2	.30 - .59		3 - 7	5 - 16

REGION: AR, CU, DD, DN, FL
COMMENTS: Seed: May: N 2.0; P. 26; K 1.5; S. 09; Ca 10; Mg .23; Cu 14, Zn 47; B 11; Mn 20

SPECIES: *Macroptilium gracile*
COMMON NAME: Llanos macro
CULTIVAR: Maldonado
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov		140			
Dec	28	226 - 316			
Jan	26	392 - 680		<. 1 - .3	
Feb				<. 1 - .3	
Mar	16 - 31	86 - 290	96 - 166	<.2	
Apr	21 - 29	260 - 404	116 - 246		
May	17 - 33	102 - 260	88 - 380		
Jun	34		97 - 98		
Jul	6		111 - 254		
Aug					

REGION: DD, DN, KN

SPECIES: *Macroptilium gracile*
COMMON NAME: Llanos macro
CULTIVAR: Maldonado
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.9	.18	1.1	.10	0.6	.77	.01	5	23
Oct	2.3 - 2.9	.14 - .22	0.8 - 1.9	.08 - .23	0.6 - 1.0	.58 - .85	.01 - .12	5 - 11	19 - 37
Nov									
Dec									
Jan									
Feb									
Mar	2.5 - 4.1	.14 - .25	1.2 - 1.4	.16 - .23	0.5 - 1.2	.59 - .74	.01	8 - 9	21 - 37
Apr	2.4 - 2.5	.10 - .16	1.1	.18	0.9	.39	<.01	10	
May									
Jun									
Jul	2.2 - 2.4	.08 - .12	0.5 - 0.7	.14 - .26	0.9 - 1.3	.32 - .79	<.01 - .01	6 - 10	27 - 42
Aug									

REGION: AR, CU, DN

SPECIES: *Macroptilium gracile*
COMMON NAME: Llanos macro
CULTIVAR: Maldonado
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	0 .9	.18							
Mar	1.4 - 1.9	.10 - .20	2.2 - 2.4	.12 - .15	0.3 - 0.5	.25 - .27	.01 - .03	7	18 - 45
Apr	1.0 - 1.4	.07 - .19	2.5	.16	0.4	.28	.01	9	49
May									
Jun									
Jul	1.5	.10	1.2	.16	0.3	.25	<.01	4	39
Aug									

REGION: AR, CU, DN

SPECIES: *Macroptilium lathyroides*
COMMON NAME: Phasey bean
CULTIVAR: Murray
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.9 - 1.4	.04 - .11	1.1 - 1.3	.04 - .07	0.9	.31	.01	3 - 4	12 - 16
Oct	1.3	.07	1.0	.02	1.2	.26	<.01	4	16
Nov	2.4 - 2.8	.23	1.5	.11	1.4		<.01	14	45
Dec	2.4 - 3.0	.13 - .34	1.8 - 2.3	.16 - .31	1.1 - 1.3	.33 - .47	.02 - .06	5 - 9	24 - 44
Jan	2.1 - 2.6	.10 - .24	1.3 - 2.0	.14 - .23	1.2 - 1.6	.27 - .30	<.01 - .04	5 - 9	22 - 36
Feb	1.9 - 3.2	.14 - .25	1.4 - 1.9	.12 - .19	1.5 - 1.6	.30 - .34	<.01	7 - 9	23 - 40
Mar	1.5 - 2.8	.14 - .23	0.9 - 2.0	.10 - .16	0.9 - 1.6	.27 - .46	.01 - .07	4 - 10	19 - 37
Apr	1.0 - 2.9	.09 - .22	1.1 - 1.9	.10 - .20	0.8 - 1.6	.31 - .47	<.01 - .06	3 - 10	16 - 35
May	0.9 - 2.0	.09 - .18	0.8 - 1.6	.08 - .15	0.9	.13 - .49	<.01 - .06	3 - 9	23 - 38
Jun	0.9 - 2.0	.06 - .21	1.3 - 1.7	.09 - .15	0.7 - 1.1	.23 - .44	.03 - .05	3 - 8	18 - 28
Jul	0.8 - 2.0	.08 - .19	1.3	.08 - .12	1.0	.31 - .33	<.01 - .06	5 - 11	22 - 47
Aug	1.2	.06	0.9 - 1.1	.09 - .10	1.1 - 1.2	.27 - .29		3 - 10	31

REGION: AR, CU, DD, DN, DW
COMMENTS: Mo: Jan <.2; Feb 3.6; Mar 1.6

SPECIES: *Macroptilium lathyroides*
COMMON NAME: Phasey bean
CULTIVAR: Murray
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	1.7 - 3.4	.11 - .33							
Mar	2.4 - 4.2	.17 - .27							
Apr	1.4 - 3.5	.07 - .27							
May									
Jun									
Jul									
Aug									

REGION: AR, DN

SPECIES: *Macroptilium lathyroides*
COMMON NAME: Phasey bean
CULTIVAR: Murray
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	0.9 - 2.5	.08 - .11							
Mar	0.6 - 1.4	.06 - .11							
Apr	0.6 - 1.5	.03 - .16							
May									
Jun									
Jul									
Aug									

REGION: AR, DN

SPECIES: *Macrotyloma axillare*
COMMON NAME: Perrenial horsegram
CULTIVAR: Archer
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	1.7 - 3.2	.19	1.3	.27					
Apr	2.1 - 2.4	.18	0.7	.06					
May	1.8	.16	0.9	.13					
Jun									
Jul	1.8	.11	0.6	.11					
Aug	2.4	.16	0.5						

REGION: AR, DW

SPECIES: *Medocago sativa*
COMMON NAME: Lucerne
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.3 - 4.4	.14 - .40	3.1 - 4.6	.32 - .47	1.2 - 1.7	.26 - .34	.01 - .02	9 - 11	21 - 30
Oct	2.2 - 4.1	.13 - .29	1.8 - 3.8	.19 - .52	1.3 - 2.3	.19 - .47	.01 - .16	7 - 11	17 - 41
Nov	3.1 - 4.7	.30 - .38	3.4 - 3.5	.45 - .63	1.8 - 2.1	.36 - .57	.01 - .02	10 - 12	26 - 39
Dec	2.9 - 3.8	.32 - .41	2.6 - 3.8	.46 - .49	1.1 - 1.3	.28 - .37	.01 - .02	11	26 - 27
Jan	2.0	.25	2.2						
Feb									
Mar	2.9	.21							
Apr									
May	2.0 - 3.3	.17 - .25	2.3 - 2.7	.16 - .45	1.9	.36		8 - 9	16 - 20
Jun									
Jul									
Aug	2.3 - 4.4	.26 - .49	1.4 - 4.6	.36 - .51	1.4 - 1.8	.25 - .65	.03 - .04	8 - 12	17 - 42

REGION: CU, DD, KN
COMMENTS: Irrigated dry season crops

SPECIES: *Medocago sativa*
COMMON NAME: Lucerne
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep		96 - 178		1.3 - 3.0	
Oct		127 - 735	30 - 127	.7	
Nov		202 - 264			
Dec		675 - 854			
Jan					
Feb					
Mar					
Apr					
May		82 - 270			
Jun					
Jul					
Aug			26 - 124		

REGION: CU, DD, DN

SPECIES: *Mucuna deeringianum*
COMMON NAME: Velvet bean
PLANT PART: Tops/Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	4.2								
Apr	1.5 - 3.3								
May									
Jun	3.6	.12	0.8						
Jul									
Aug									

REGION: AR, DD, DN
COMMENTS: Stem: Jun: N 1.0; P .01; K .8

SPECIES: *Pueraria phaseoloides*
COMMON NAME: Puero, Tropical kudzu
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	4.0 - 4.3								
Dec									
Jan	1.9 - 2.3								
Feb	2.1 - 2.4								
Mar	1.5 - 2.0								
Apr	1.4 - 1.7								
May	1.5 - 2.0								
Jun	1.5 - 2.0								
Jul									
Aug									

REGION: CU, DN

SPECIES: *Neptunia monosperma*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	3.1 - 3.3	.22 - .23		.37	0.7				
Dec	2.1	.09							
Jan	3.1	.20							
Feb									
Mar	3.3	.27							
Apr									
May									
Jun	1.7	.13							
Jul	1.2	.06							
Aug									

REGION: VR

SPECIES: *Sesbania cannabina*
COMMON NAME: Sesbania pea
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.2	.31	1.3	.16	0.7	.26		10	36
Oct	5.8	.32	3.5	.85	1.1	.56	.02	11	42
Nov	2.7 - 2.9	.17 - .23	2.3 - 3.5	.19 - .30	0.8 - 1.4	.16	.02	7 - 12	22 - 35
Dec	2.0 - 3.5	.21 - .28	1.7 - 2.8	.19 - .26	0.7 - 1.1	.13 - .19	.01 - .06	4 - 11	26 - 36
Jan	2.2 - 3.6	.20 - .29	1.5 - 2.3	.21 - .23	0.6 - 0.9	.13 - .19	<.01 - .05	7	26 - 31
Feb	2.5 - 3.7	.16 - .26	1.4 - 2.7	.24 - .28	0.5 - 1.1	.11 - .16	<.01 - .03	5 - 8	24 - 38
Mar	1.6 - 2.7	.14 - .22	1.2 - 1.9	.14 - .21	0.6 - 1.2	.15 - .18	<.01 - .09	4 - 11	30 - 35
Apr	1.3 - 2.5	.12 - .23	0.7 - 1.7	.11 - .17	0.7 - 0.9	.11 - .23	<.01 - .09	4 - 7	15 - 30
May	1.2 - 1.9	.12 - .15	0.8 - 1.6	.12	0.7	.13 - .18	<.01 - .07	3 - 5	29 - 34
Jun	1.4 - 1.9	.10 - .13	0.6 - 1.0	.12 - .22	0.7 - 1.0	.18 - .37	<.01 - .06	2 - 8	25 - 27
Jul	1.7 - 2.3	.13 - .18	1.0 - 1.6	.15 - .17	1.0 - 1.2	.26 - .32	.01 - .05	1 - 11	22 - 37
Aug	1.2	.09	0.7	.15	0.6	.26			32

REGION: CU, DD, FL, VR
COMMENTS: Mo: Dec .8; Feb <.2; Mar 1.6

SPECIES: *Stylosanthes guianenses*
COMMON NAME: Stylo
CULTIVAR: Cook, Endeavour, Graham, Schofield
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.8 - 1.3	.05 - .06	0.3 - 1.1	.06 - .08	0.9 - 1.5	.23 - .51	.01 - .02	4 - 8	6 - 21
Oct	1.1 - 1.9	.04 - .06	0.3 - 0.8	.08				4 - 5	21 - 22
Nov	1.2 - 1.9	.04 - .08	0.5 - 1.0						
Dec	2.4 - 3.0	.11 - .23	1.4 - 2.4	.14 - .15			<.01	15 - 16	
Jan	1.8 - 2.9	.10 - .21	1.0 - 2.2	.16 - .19	1.6 - 1.8	.42 - .46	<.01	9 - 11	29 - 61
Feb	1.8 - 3.6	.10 - .22	0.8 - .21	.13 - .23	1.0 - 1.6	.34 - .53	<.01 - .03	4 - 12	37 - 59
Mar	1.5 - 3.0	.07 - .22	0.6 - 2.0	.07 - .21	1.4 - 1.7		<.01 - .02	4 - 12	21 - 70
Apr	1.1 - 2.8	.07 - .22	0.7 - 1.8	.08 - .21	0.6 - 1.4	.25 - .57	<.01 - .01	5 - 15	17 - 86
May	1.1 - 2.6	.05 - .19	0.4 - 1.7	.05 - .13	0.8 - 1.7	.26 - .58	<.01 - .02	4 - 6	18 - 37
Jun	1.1 - 2.1	.04 - .16	0.3 - 1.7	.07 - .13	0.5 - 1.6	.24 - .43	<.01 - .01	2 - 7	7 - 24
Jul	1.1 - 1.9	.05 - .14	0.3 - 1.7	.05 - .14	0.5 - 1.4	.22 - .53	<.01 - .02	2 - 6	5 - 30
Aug	0.9 - 2.0	.04 - .10	0.4 - 1.5	.08 - .12	0.6 - 1.3	.24 - .50	<.01 - .03	4 - 7	5 - 30

REGION: AR, CU, DD, DN

SPECIES: *Stylosanthes guianenses*
COMMON NAME: Stylo
CULTIVAR: Cook, Endeavour, Graham, Schofield
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec					
Jan				< .1 - .5	
Feb				< .1 - .3	
Mar	26 - 31				
Apr	25 - 30	223	46 - 90		
May	19 - 25				
Jun	16 - 19				
Jul					
Aug					

REGION: AR, CU, DD, DN

SPECIES: *Stylosanthes guianesis*
COMMON NAME: Stylo
CULTIVAR: Cook, Endeavour, Graham, Schofield
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	3.0 - 3.8	.14 - .30	1.5	.14					
Oct	2.1	.12	0.9	.15					
Nov	3.0	.16	0.9						
Dec	3.0	.24	1.4	.27					
Jan	2.5	.11	0.8	.22					
Feb	2.4	.11	1.5	.19					
Mar	2.4 - 3.1	.16 - .17	1.0 - 1.7	.06					
Apr	2.4 - 2.6	.15 - .16	1.3 - 1.7	.06 - .07					
May	1.8 - 2.2	.12 - .15	0.8 - 1.4	.04 - .14					
Jun									
Jul	1.5 - 1.8	.09 - .12	0.7 - 1.1	.12					
Aug	1.7 - 2.3	.09 - .14	0.8	.09					

REGION: AR, CU, DN

SPECIES: *Stylosanthes hamata*
COMMON NAME: Caribbean stylo
CULTIVAR: Verano, Amiga
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.8 - 2.5	.02 - .07	0.2 - 1.3	.03 - .11	0.5 - 1.1	.11 - .26	<.01 - .01	2 - 5	8 - 25
Oct	0.9 - 2.4	.02 - .06	0.2 - 1.2	.01 - .07	0.7 - 1.6	.20 - .23	.01 - .09	3 - 9	6 - 17
Nov	1.8 - 3.4	.03 - .24	1.0 - 1.8	.08 - .31	0.8 - 1.9	.14 - .41	<.01 - .03	7 - 9	10 - 42
Dec	1.4 - 3.0	.04 - .22	0.7 - 2.5	.11 - .25	1.1 - 1.7	.34 - .39	.01 - .07	5 - 10	11 - 48
Jan	1.5 - 2.9	.09 - .21	1.2 - 2.5	.08 - .22	1.0 - 1.6	.17 - .46	<.01 - .06	5 - 10	15 - 36
Feb	1.6 - 3.0	.05 - .15	0.8 - 2.0	.07 - .19	0.7 - 1.6	.09 - .48	<.01 - .06	6 - 10	18 - 36
Mar	1.2 - 2.6	.05 - .19	0.8 - 2.6	.04 - .20	0.7 - 1.7	.10 - .38	<.01 - .03	3 - 13	13 - 50
Apr	1.2 - 2.5	.05 - .15	0.9 - 2.0	.05 - .20	0.4 - 1.7	.12 - .35	<.01 - .05	3 - 10	10 - 52
May	0.8 - 2.2	.04 - .13	0.8 - 1.7	.05 - .18	0.5 - 1.4	.12 - .30	.01 - .04	2 - 9	6 - 44
Jun	0.7 - 1.5	.02 - .09	0.7 - 1.5	.03 - .10	0.4 - 1.2	.12 - .33	<.01 - .07	2 - 7	5 - 25
Jul	0.8 - 1.3	.03 - .06	0.3 - 1.3	.05 - .09	0.5 - 1.2	.10 - .22	<.01 - .07	2 - 7	5 - 19
Aug	0.8 - 1.3	.02 - .06	0.2 - 1.0	.04 - .09	0.5 - 0.8	.09 - .26	<.01 - .07	2 - 5	5 - 20

REGION: AR, CU, DD, DN, DW,KN, VR
COMMENTS: Seed: May: N 3.9; P .3; K 1.0; S .06; Ca 1.7; Mg .34, Ca 14; Zn 37; B 14; Mn 110

SPECIES: *Stylosanthes hamata*
COMMON NAME: Caribbean stylo
CULTIVAR: Verano, Amiga
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov			141 - 162		
Dec	24	119			
Jan	25	517	92 - 235	< .1 - 0.2	
Feb			135	.1 - 2.1	
Mar	17 - 22	118 - 130	97 - 160	.1 - 2.1	
Apr	18 - 21	148 - 460	83 - 250	.1 - 1.3	
May	17 - 20	80 - 460	57 - 252		
Jun	17 - 19				
Jul					
Aug			238		

REGION: AR, CU, DD, DN, DW,KN, VR

SPECIES: *Stylosanthes hamata*
COMMON NAME: Caribbean stylo
CULTIVAR: Verano, Amiga
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.4 - 1.8	.05 - .10	0.9	.19					
Oct	1.7 - 2.1	.08 - .16	0.8	.12					
Nov	2.9	.20							
Dec	2.2	.09 - .17	1.0	.13					
Jan	2.5	.09	0.9	.07					
Feb	2.7	.15	1.3	.17					
Mar	2.1 - 2.6	.12 - .17	1.0 - 1.5	.09 - .19	2.3	.80	<.01	10	25
Apr	2.0 - 2.5	.12 - .15	0.9 - 1.0	.06					
May	1.9 - 2.3	.08 - .16	0.5 - 0.9	.05 - .16	1.1 - 1.3	.34 - .44	.02	3 - 7	21 - 26
Jun									
Jul	1.2 - 2.3	.05 - .16	0.2 - 1.5	.09 - .14	0.5 - 0.6	.26 - .42	.01 - .03	2 - 3	17 - 23
Aug									

REGION: AR, DD, KN
COMMENTS: Seedheads: May: N 2.0; P .12; S .12; Cu 7

SPECIES: *Stylosanthes hamata*
COMMON NAME: Caribbean stylo
CULTIVAR: Verano
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.9 - 1.4	.02 - .03							
Oct	0.8 - 1.5	.02 - .04							
Nov									
Dec									
Jan									
Feb									
Mar	1.0	.05	1.2	.08				5	
Apr									
May	1.0	.04 - .09		.05 - .08				3 - 4	
Jun			0.8 - 1.0						
Jul	1.2 - 1.5	.03 - .05		.01 - .04					
Aug									

REGION: DD, KN

SPECIES: *Stylosanthes humilis*
COMMON NAME: Townsville stylo, Townsville lucerne
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.4 - 1.3	.01 - .12	0.6 - 1.4	.09 - .10	0.4 - 1.6				
Oct	0.4 - 2.4	.01 - .12		.13	0.80				
Nov	0.8 - 3.3	.05 - .24	1.1						
Dec	1.8 - 3.4	.12 - .25	1.0 - 1.7						
Jan	2.0 - 3.0	.12 - .27	1.3						
Feb	1.5 - 3.0	.08 - .22	1.3 - 2.3	.07 - .12	0.6		.04 - .07	4 - 5	15 - 67
Mar	1.2 - 3.0	.07 - .19	1.2 - 2.2	.07 - .23	1.2	.43	.05 - .09	4 - 6	40
Apr	1.2 - 2.5	.04 - .19	1.0 - 1.5	.07 - .20	1.2	.43	.09	6 - 10	35 - 44
May	0.8 - 2.3	.03 - .18	0.5 - 1.5	.05 - .12	0.4 - 1.6		.05	3 - 5	23 - 44
Jun	0.8 - 2.1	.02 - .10	0.4 - 1.2	.05 - .11	0.3 - 1.0	.35	.04	5	30
Jul	0.9 - 1.9	.04 - .19	0.3 - 0.4	.03 - .14	0.3 - 0.9	.17 - .24	.05 - .08	2 - 5	21 - 50
Aug	0.9 - 1.8	.04 - .15	0.7 - 1.4		0.5 - 1.6				

REGION: AR, CU, DD, DN, DW, KN, VR
COMMENTS: Jul: Mn 110 - 210; Mo .1 - .2

SPECIES: *Stylosanthes humilis*
COMMON NAME: Townsville stylo, Townsville lucerne
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec	3.2	.14							
Jan	2.6 - 3.5	.07 - .13							
Feb	2.4 - 3.8	.07							
Mar	2.6 - 3.3	.08 - .11							
Apr	1.9 - 2.7	.05 - .08							
May	1.8 - 2.1	.04 - .07							
Jun									
Jul									
Aug									

REGION: DD, KN

SPECIES: *Stylosanthes humilis*
COMMON NAME: Townsville stylo, Townsville lucerne
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec	2.3	.17							
Jan	1.5 - 2.6	.06 - .14							
Feb	1.4 - 1.7	.05 - .07							
Mar	1.2 - 1.9	.04 - .08							
Apr	0.7 - 1.3	.02 - .04							
May	0.7 - 1.2	.01 - .06		.07				5	
Jun									
Jul									
Aug									

REGION: DD, KN

SPECIES: *Stylosanthes humilis*
COMMON NAME: Townsville stylo, Townsville lucerne
PLANT PART: Pods

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	3.5 - 3.9	.16 - .18							
Mar	3.5 - 4.5	.16 - .25							
Apr	2.5 - 4.7	.19 - .24							
May	4.2 - 4.7	.19 - .21							
Jun									
Jul									
Aug									

REGION: DD, KN
COMMENTS: Seed: N 4.0 - 5.6; P .24 -. 55; K .5 - .6; S .29 - .37; Ca .6 - .7; Mg 13 - 37; Na .01 - .02

SPECIES: *Stylosanthes scabra*
COMMON NAME: Shrubby stylo
CULTIVAR: Fitzroy, Seca
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.0 - 1.2	.03	0.4 - 1.0	.04 - .08	0.9 - 1.9	.12 - .22	.01 - .08	3 - 5	5 - 13
Oct	0.8 - 2.2	.03 - .13	0.6 - 1.1	.08 - .16	0.4 - 1.1	.15 - .22	.09 - .31	3 - 9	25 - 37
Nov	1.1 - 2.8	.05 - .11	0.9 - 1.6	.04 - .06	0.6 - 2.0	.22 - .24	.01 - .07	5 - 9	22 - 36
Dec	1.7 - 2.2	.07 - .16	0.8 - 1.6	.12 - .13	0.9 - 1.8	.28 - .38	.03 - .11	5 - 8	12 - 30
Jan	1.3 - 2.4	.07 - .17	0.8 - 1.9	.07 - .17	1.0 - 1.7	.17 - .42	.01 - .14	4 - 7	12 - 21
Feb	1.2 - 2.4	.07 - .19	0.5 - 2.0	.06 - .16	0.8 - 1.8	.23 - .38	.07 - .14	3 - 12	13 - 55
Mar	1.0 - 2.4	.07 - .23	0.5 - 1.7	.07 - .17	0.6 - 1.5	.21 - .41	.06 - .10	3 - 9	12 - 36
Apr	0.9 - 2.4	.05 - .17	0.5 - 1.9	.06 - .16	0.5 - 1.9	.11 - .39	.01 - .08	2 - 11	12 - 53
May	1.0 - 1.9	.04 - .17	0.3 - 1.5	.03 - .12	0.5 - 1.8	.10 - .33	.03 - .12	3 - 10	12 - 41
Jun	0.8 - 1.7	.05 - .14	0.4 - 1.4	.04 - .12	0.5 - 1.9	.08 - .33	.03 - .09	2 - 5	5 - 17
Jul	1.1 - 1.6	.05 - .12	0.4 - 1.0	.04 - .08	0.4 - 2.0	.06 - .35	.02 - .07	2 - 5	3 - 15
Aug	0.7 - 1.2	.03 - .06	0.3 - 0.8	.04 - .08	0.5 - 2.0	.10 - .20	<.01 - .07	2 - 4	4 - 14

REGION: AR, CU, DD, DN, DW, KN, VR

SPECIES: *Stylosanthes scabra*
COMMON NAME: Shrubby stylo
CULTIVAR: Fitzroy, Seca
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec					
Jan				< .1	
Feb				< .1 - .1	
Mar	13 - 14			<.2	
Apr	10 - 14				
May	12 - 14				
Jun	11 - 13				
Jul					
Aug					

REGION: AR, CU, DD, DN, DW, KN, VR

SPECIES: *Stylosanthes scabra*
COMMON NAME: Shrubby stylo
CULTIVAR: Fitzroy, Seca
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.3 - 3.2	.11 - .18	0.5 - 1.3	.10 - .14					
Oct	2.4 - 3.8	.12 - .41	1.2	.12					
Nov	2.8	.23							
Dec	3.3	.23	1.5	.14					
Jan	2.6	.09	1.1	.06					
Feb	2.7	.16	1.7	.20					
Mar	2.3 - 3.1	.10 - .25	1.2 - 2.2	.09 - .27	1.4	.61 - .72	.10 - .33	8 - 12	39
Apr	2.1 - 2.8	.15 - .19	1.0 - 1.3	.07 - .22	1.4 - 2.1	.39 - .71	.06 - .28	6 - 10	19 - 53
May	1.5 - 2.6	.06 - .18	0.6 - 1.9	.08 - .22	1.4 - 2.0	.32 - .39	.04 - .08	4 - 10	22 - 33
Jun	2.3	.09	1.5	.14	1.9	.26	.02	6	
Jul	1.3 - 2.0	.04 - .09	0.4 - 0.8	.07 - .14	1.2 - 1.7	.30 - .33	.09	2 - 4	11 - 30
Aug	2.1	.09 - .11	0.6 - .08	.02 - .08					

REGION: AR, DD, KN
COMMENTS: Seedheads: May: N 1.6 - 1.8; P .05 - .11; S .07 - .12; Cu 5

SPECIES: *Stylosanthes scabra*
COMMON NAME: Shrubby stylo
CULTIVAR: Fitzroy, Seca
PLANT PART: Stems

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar	0.9	.05	1.2 - 1.7	.08	0.7 - 1.7	.13 - .45	.08	6	66 - 69
Apr	1.0	.08	0.7	.09	0.8	.16	.15	6	29
May	0.7 - 1.0	.03 - .10		.04 - .09				3 - 5	
Jun	1.1	.05	0.8	.07	1.1	.12	.03	4	68
Jul									
Aug									

REGION: DD, KN

SPECIES: *Stylosanthes subsericea*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	0.8	.04							
Dec									
Jan	2.8	.19							
Feb	3.4	.25							
Mar									
Apr	3.1	.09							
May	2.5	.13							
Jun									
Jul									
Aug									

REGION: VR

SPECIES: *Stylosanthes viscosa*
COMMON NAME: Sticky stylo
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	0.9 - 1.6	.05 - .09	1.1						
Oct									
Nov									
Dec									
Jan									
Feb	1.6 - 2.7	.11 - .17	1.0 - 1.7	.04 - .11				2	25 - 35
Mar	1.9 - 2.9	.10 - .18		.09 - .13				7 - 9	
Apr	0.8 - 2.9	.05 - .16	0.8 - 1.3	.05 - .07				1	44 - 55
May	1.3 - 2.7	.06 - .16	0.6 - 1.6	.04 - .12				3 - 10	41 - 60
Jun	1.5 - 2.1	.05 - .10	0.8 - 1.8	.10					
Jul	1.6 - 1.8	.07 - .12	0.9 - 1.1	.07 - .09					
Aug									

REGION: AR, CU, DW, KN, VR

SPECIES: *Stylosanthes viscosa*
COMMON NAME: Sticky stylo
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar									
Apr									
May	1.7 - 2.6	.09 - .17						6 - 7	
Jun									
Jul	2.1 - 2.4	.09 - .12	.09 - .15						
Aug									

REGION: KN, VR

SPECIES: *Stylosanthes viscosa*
COMMON NAME: Sticky stylo
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar									
Apr									
May	0.7 - 1.2	.04 - .10		.04 - .10				4 - 6	
Jun									
Jul	1.1 - 1.4	.05 - .06	0.7 - 0.8	.03 - .05					
Aug									

REGION: KN, VR

SPECIES: *Vigna lanceolata*
COMMON NAME: Maloga bean
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	2.8 - 3.6	.12 - .15	1.3 - 1.5	.14 - .22	1.1	.18 - .20	.01 - .06	7	26 - 37
Dec									
Jan	2.3	.09	2.0	.19	1.4	.25	<.01	6	23
Feb	1.7	.09	1.1	.20	1.7	.19	.03	7	30
Mar									
Apr	1.3 - 2.5	.10 - .18	1.4 - 1.6	.17 - .19	0.7 - 1.4	.26 - .45	<.01 - .03	3 - 7	15 - 37
May									
Jun									
Jul									
Aug									

REGION: DD

SPECIES: *Vigna luteola*
COMMON NAME: Dalrymple vigna
CULTIVAR: Dalrymple
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb									
Mar									
Apr	2.0								
May	1.4 - 2.3								
Jun									
Jul									
Aug									

REGION: AR, CU, DD

SPECIES: *Vigna luteola*
COMMON NAME: Dalrymple vigna
CULTIVAR: Dalrymple
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	2.7	.15							
Mar	3.0	.20							
Apr	2.4	.12 - .19							
May									
Jun									
Jul									
Aug									

REGION: AR

SPECIES: *Vigna luteola*
COMMON NAME: Dalrymple vigna
CULTIVAR: Dalrymple
PLANT PART: Stem

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	1.6	.15							
Mar	0.9	.14							
Apr	1.1 - 1.5	.08 - .18							
May									
Jun									
Jul									
Aug									

REGION: AR

SPECIES: *Vigna spp (radiata, trilobata)*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec	2.3 - 2.6	.29 - .33	2.7 - 3.5	.15	0.9 - .14	.45 - .46	.01	4 - 8	21 - 24
Jan	2.0	.28	3.1	.17	1.1	.40	< .01	8	21
Feb									
Mar	2.3 - 2.5	.15 - .35	2.6 - 3.3	.17 - .29	1.2 - 1.6	.27 - .63	< .01 - .01	6 - 12	21- 41
Apr	1.7 - 1.9	.17 - .34	2.1 - 2.8	.13 - 15	0.8 - 1.0	.35 - .39	< .01 - .01	6	15 - 26
May	1.5	.14 - .21	2.1 - 3.2	.19 - .22	1.1 - 1.3	.31 - .41	.01	27	17 - 24
Jun									
Jul									
Aug									

REGION: AR, DD, KN
COMMENTS: Leaf: Jun: N 3.2; P .20; K 1.3

SPECIES: *Vigna* spp *(radiata,trilobata)*
PLANT SPECIES: *Tops*

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec	36	122 - 472			
Jan		250			
Feb					
Mar	33	283 - 424	118 - 200		
Apr	32	85 - 423			
May					
Jun					
Jul					
Aug					

REGION: KN

SPECIES: *Vigna unguiculata*
COMMON NAME: Cowpea
CULTIVAR: Arafura, Caloona, Meringa, Santiago
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct	0.8								
Nov									
Dec									
Jan	2.0 - 4.7	.14 - .36	1.2 - .41	.20	1.0 - 2.5	.25 - .47	<.01	5 - 9	29 - 54
Feb	1.7 - 4.0	.13 - .45	1.5 - 4.3	.22 - .25	1.7	.37 - .52		7 - 9	25 - 50
Mar	1.3 - 4.1	.15 - .54	1.0 - 3.8	.15 - .42	1.2 - 2.1	.24 - .47	<.01 - .01	4 - 7	13 – 42
Apr	1.6 - 2.9	.14 - .39	2.2 - 3.8	.17 - .20	1.0 - 1.5	.33 - .39	<.01	4	12 - 14
May	1.8 - 2.5	.14 - .24	2.8 - 2.9	.13	0.9	.38	.01	4	14
Jun									
Jul									
Aug									

REGION: CU, DD, DN, KN

SPECIES: *Vigna unguiculata*
COMMON NAME: Cowpea
CULTIVAR: Arafura, Caloona, Meringa, Santiago
PLANT PART: Tops

MONTH	NUTRIENT CONCENTRATION RANGE				
	B	**Fe**	**Mn**	**Mo**	**Cl**
Sep					
Oct					
Nov					
Dec					
Jan		127 - 317	120 - 310		
Feb	29				
Mar	9 - 44	600 - 836	136 - 415		
Apr	27		84		
May					
Jun					
Jul					
Aug					

REGION: CU, DD, DN, KN

MISCELLANEOUS LEGUMES

Cajanus marmoratus (VR)
Tops: Jul: N 1.6; P .11

Crotalaria medicaginea; Trefoil rattlepod (VR)
Tops: Jul: N 2.5; P .08

Desmathus sp (DN)
Tops: Feb: N 2.5; P .19; K 1.3; S .21; Ca 1.3; Mg .45; Na .02; Cu 4; Zn 18

Desmodium tortuosum; Florida beggarweed (DD)
Tops: Feb: N 2.7; P .21; K 1.9; S .12; Ca 1.4; Mg .28; Na .01; Cu 7; Zn 30

Flemingia pasciflora (VR)
Tops: Jul: N 1.2 - 1.4; P .05 - .07

Macrotyloma uniflorum; Horse gram; Leichardt (DW)
Tops: Jun: N 2.1 - 3.0

Neontonia wightii (DD, DN)
Tops: Apr 2.0; May 2.1

Rhynchosia minima; Rhynchosia (VR)
Tops: Jul: N 1.1 - 1.5; P .06 - .08

Sesbania sesban (FL)
Tops: May N 1.4
Leaf and twigs: Sep: N 4.2; P .22; K 2.7; S .40; Ca 1.0; Mg .34; Na .03; Cu 10; Zn 39

Tephrosia virens (VR)
Tops: Jul: N 1.9; P 1.0

OTHER FORAGE PLANTS

SPECIES: *Aerva javanica*
COMMON NAME: Kapock bush
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.5	.17							
Oct	1.4 - 1.8	.04 - .10		.17	1.8				
Nov	1.1 - 3.0	.04 - .24		.41	1.4				
Dec	3.0	.13							
Jan	1.9 - 2.0	.12							
Feb	1.9 - 2.9	.10 - .21							
Mar	1.8	.11							
Apr	1.4 - 3.3	.06 - .26			1.1				
May	1.3 - 2.9	.09 - .17							
Jun	2.2	.13							
Jul	0.6	.03			0.9				
Aug									

REGION: VR
COMMENTS: Leaf: Aug: N 1.3; P .07; Stems: Aug: P .03; Seeds: Aug: N 1.5; P .10

SPECIES: *Atalaya hemiglauca*
COMMON NAME: Whitewood
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct	1.3 - 2.2	.10 - .20		.23	0.5 - 2.2				
Nov	1.8	.20		.29	0.6				
Dec									
Jan									
Feb	1.8	.17			1.2				
Mar									
Apr									
May									
Jun									
Jul		.10			2.6				
Aug									

REGION: VR

SPECIES: *Calatropis procera*
COMMON NAME: Rubber bush
PLANT PART: Leaf

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov	3.3	.24		.75	1.9				
Dec	2.2	.13 - .18							
Jan									
Feb	1.8 - 2.8	.13 - .18							
Mar									
Apr									
May									
Jun	1.7	.16							
Jul									
Aug									

REGION: VR
COMMENTS: Flowers: Dec: N 2.0; P .36; Jan: N 1.8 - 1.9; P .35 - .38

SPECIES: *Carissa lanceolata*
COMMON NAME: Conkerberry
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	1.2 - 1.7	.09 - .17	1.5	.17	1.3 - 1.8	.39	.01		
Oct	1.4 - 2.1	.17 - .20	1.6	.27	0.6 - 1.0	.30	.01		
Nov	1.7 - 2.1	.14 - .20		.23	0.6				
Dec	1.6 - 1.8	.13 - .15	1.5		1.1	.42	.01		
Jan	1.3 - 1.5	.10 - .12							
Feb	1.2 - 1.6	.10 - .14	1.6		1.7	.37	.01		
Mar	1.3 - 1.4	.09 - .12							
Apr	1.1 - 1.4	.06 - .14							
May									
Jun	1.3 - 1.4	.10 - .11	1.0		1.6	.37	.01		
Jul	1.1 - 1.2	.09							
Aug	1.2	.09 - .15	1.1		1.8	.37	.01		

REGION: VR

SPECIES: *Cyperus* spp, *Fimbristylis* spp
COMMON NAME: Sedges
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct	1.2	.09							
Nov									
Dec	1.0								
Jan	0.8								
Feb	1.1 - 2.1								
Mar	0.9 - 2.1	.22 - .33							
Apr	0.6 - 1.2								
May	0.5 - 0.8								
Jun									
Jul	0.9	.03							
Aug									

REGION: AR, FL
COMMENTS: Leaf: May: N 1.9; P .13

SPECIES: *Eleocharis* spp
COMMON NAME: Spikerushes
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan	1.3 - 3.2								
Feb	1.4 - 2.3								
Mar	1.1 - 2.0								
Apr	1.2 - 1.9								
May	1.2 - 1.8								
Jun	1.2 - 1.6								
Jul	1.4								
Aug									

REGION: FL

SPECIES: *Sida* spp *(acuta(S.a), cordifolia(S.c))*
COMMON NAME: Spiny head sida *(S.a),* Flaunduners *(S.c)*
PLANT PART: Tops

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep									
Oct									
Nov									
Dec									
Jan									
Feb	3.2 - 3.5	.34 - .41	3.5 - 3.7	.18 - .22	1.4 - 2.0	.39 - .47		9 - 12	32 - 46
Mar									
Apr									
May									
Jun									
Jul									
Aug									

REGION: DD
COMMENTS: Feb: B 32 - 42; Mn 80 - 192

SPECIES: *Premma acuminata*
PLANT PART: Leaf and twigs

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	3.5	.20	2.7	.14	0.7	.21	.01	7	18
Oct	2.3	.16	2.2	.12	1.3	.25	.03	7	14
Nov	2.8	.15	1.9	.14	1.5	.19	.01	6	14
Dec									
Jan									
Feb	3.3	.22	2.5	.15	1.6	.12	.02	9	29
Mar									
Apr									
May	1.5	.11	1.7	.12	1.8	.15	.05	5	21
Jun									
Jul									
Aug									

REGION: DD
COMMENTS: Mn: Feb 56

SPECIES: *Terminalia volucris*
COMMON NAME: Rosewood
PLANT PART: Leaf/Regrowth

	NUTRIENT CONCENTRATION RANGE								
MONTH	**N**	**P**	**K**	**S**	**Ca**	**Mg**	**Na**	**Cu**	**Zn**
Sep	2.9	.25 - .27	1.5		0.8	.36	.01		
Oct	3.1 - 3.2	.31 - .35	1.7		0.9	.31	.01		
Nov	2.2 - 3.5	.14 - .26	1.5	.23	1.1 - 1.3	.26	.01		
Dec	2.2 - 3.0	.13 - .21	1.4		2.9	.39	.01		
Jan	1.8 - 3.9	.13 - .35							
Feb	1.6 - 2.1	.12 - .23	1.3		2.0	.31	.01		
Mar	1.8 - 3.8	.14 - .34							
Apr	1.8 - 2.3	.06 - .19							
May	1.9 - 2.2	.06 - .23							
Jun	1.3 - 2.1	.06 - .16	1.2		2.0	.42	.01		
Jul	1.6 - 1.8	.08 - .11							
Aug	2.0 - 2.1	.17 - .21	1.3		2.0	.37	.01		

REGION: VR