

NORTHERN TERRITORY
DEPARTMENT OF PRIMARY INDUSTRY
AND FISHERIES

NUTRIENTS IN PASTURE
LEGUMES IN THE
TOP END
OF THE
NORTHERN TERRITORY

by A G Cameron
Principal Pastures Agronomist

Technical Bulletin No. 262
Third Edition 2001

CONTENTS

| | |
|-------------------------------|----|
| SUMMARY | 1 |
| ACKNOWLEDGEMENTS | 2 |
| INTRODUCTION | 3 |
| REFERENCES | 7 |
| NUTRIENT CONCENTRATION TABLES | 10 |

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 Bunday and Cavalcade where Bunday 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) % ($N\% \times 6.25$), 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.

Part A

Arndt, W. and Norman, M. J. T. (1950). Characteristics of Native pasture on Tippera Clay Loam at Katherine, NT. CSIRO Divison of Land Res. and Regional Survey Tech. Paper No. 3.

Calder, G. J. and Day, K. J. (1982). Fertility Studies on Four Soils of the Northern Lateritic Uplands, Northern Territory. NTDPP Tech. Bull. No. 48.

Calder, G. J., Cameron, A. G. and Ross, B. J. (1991). Preliminary investigation of the fertility of the soils of Mount Bunday Station. DPIF Technote No. 74.

Day, K. J., Fogarty, P. J., Jones, R. K., Dalgleish, N. P. and Kernot, J. C. (1983). Fertility studies on some soils of the Adelaide and Daly Basins Northern Territory. Cons. Comm. of the NT. Tech. Report No. 5.

Eggington, A. and Cameron, A. G. (1992). Pasture species and fodder crops for the Top End. NT DPIF Agnote No. 544.

Falvey, J. L. (1977). Dry season regrowth of six forage species following wildfire. *J. of Range Management* 30:37-39.

Fisher, M. J. (1969). The growth and development of Townsville lucerne (*Stylosanthes humilis*) in ungrazed swards at Katherine, NT. *Aust. J. Exp. Agric. Anim. Husb.* 9:196-208.

Fisher, M. J. (1971). Pasture Species for the Tipperary area, Northern Territory. CSIRO Div. Land. Res. Tech. Paper No. 31.

Fisher M. J. (1973). Effect of times, height and frequency of defoliation on growth and development of Townsville stylo in pure ungrazed swards at Katherine, NT. *Aust. J. Exp. Agric. Anima. Husb.* 13:389-397.

- McCown, R. L. and McLean, R. W. (1983). An analysis of cattle liveweight changes on tropical pasture during the dry and early wet seasons in northern Australia. *J. Agric. Sc. Camb.* 101:25-31.
- Norman, M. J. T. (1959). Influence of fertilisers on the yield and nodulation of Townsville lucerne (*Stylosanthes sunndaica* Taub.) at Katherine, NT. CSIRO Div. Land Res. and Regional Survey. Tech. Paper No. 5.
- Norman, M. J. T. (1960). Performance of Buffel grass and Buffel grass - Townsville lucerne Mixtures at Katherine, NT. CSIRO Div. Land Res. and Regional Survey. Tech. Paper No. 11.
- Norman, M. J. T. (1963). The pattern of dry matter and nutrient content changes in native pastures at Katherine, NT. *Aust. J. Exp. Agric. Anim. Husb.* 3:119-24.
- Norman, M. J. T. and Wetselaar, R. (1960). Performance of Annual Fodder Crops at Katherine, NT. CSIRO Div. Land Res. and Regional Survey. Tech. Paper No. 9.
- Stockwell, T. G. H. (1985a). Cavalcade: A twining tropical legume bred for the Territory. NT DPP Agnote No. 85/4.
- Stockwell, T. G. H. (1985b). Bunday: A twining tropical legume for the Northern Territory. NT DPP Agnote No. 85/5.
- Wesley-Smith, R. N., Heap, J., Staples, R. G. and Calder, G. J. (1982). Viscosa vs Verano in the NT. NT DPP Tech. Bull. No. 60.
- Woods, L. E. (1970). Beef production from pastures and forage crops in a tropical monsoonal climate. *Proc. XI Int. Grssld. Cong.* pp. 45-50.

Part B

- Cameron, A. G. and McCosker, T. H. (1986). Introduced pasture species screening on Mount Bunday Station, NT, 1979-1983. NT DPP Tech. Bull. No. 97.
- Cameron, A. G., Miller, I. L., Harrison, P. G. and Fritz, R. J. (1984). A review of pasture plant introduction in the 600-1500 mm rainfall zone of the Northern Territory. NT DPP Tech. Bull. No. 71.
- Falvey, L. (1976). Productivity of *Leucaena leucocephala* in the Daly Basin, Northern Territory. *Trop. Grssld.* 10:117-22.
- Norman, M. J. T. (1962). Performance of annual fodder crops under frequent defoliation at Katherine, NT. CSIRO Div. Land Res. and Regional Survey. Tech. Paper No. 19.
- Norman, M. J. T. (1962). Performance of pasture grasses in mixtures with Townsville lucerne at Katherine, NT. *Aust. J. Expl. Agric. Anim. Husb.* 2:221-7.

Ross, B. J. (1986). Comparison of *Stylosanthes* lines on a yellow earth in the Douglas/Daly area, NT. NT DPP Technote No. 42.

Ross, B. J. and Calder, G. J. (1987). Effect of micronutrients on Graham stylo. NT DPP Technote No. 45.

Part C

Bastin, G. (1986). The chemical analysis of herbage species at five sites in the Northern Territory. NT DPP Technote No. 43.

Parbery, D. B. (1966). History of pasture introductions at Kimberley Research Station. CSIRO Div. Land Res. Tech. Memo. 66/6.

Parbery, D. B. (1967). Pasture and fodder crop plant introductions at Kimberley Research Station, WA, 1963-64. part I - Perennial Legumes. CSIRO Div. Land Res. Tech. Memo. 67/6.

Parbery, D. B. (1967). Pasture and fodder crop plant introductions at Kimberley Research Station, WA, 1963-64. Part II - Annual Legumes. CSIRO Div. Land Res. Tech. Memo 67/10.

Robinson, D. W. and Sageman, R. (1967). Seasonal changes in the chemical composition of some natural pastures in the East Kimberley Region of North Western Australia. CSIRO Div. Land Res. Tech. Memo. 67/17.

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 Bunday 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: Buddha 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 mucunoides*
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 brasiliatum*
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: Bunday, 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: Bunday, 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: Bunday, 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: Bunday, 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-leaved 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-leaved 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-leaved 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-leaved 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: *Dendrolobium 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 tinctoria*
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, Cunninghamham
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: Perennial 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: *Medicago 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: *Medicago 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 guianensis*
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: 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: Shubby 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
 Dalrymple vigna
 Dalrymple
 Tops

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:
COMMON NAME:
CULTIVAR:
PLANT PART:

Vigna luteola
 Dalrymple vigna
 Dalrymple
 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: *Premna 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 volucriis*
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