



CITY OF HOUSTON

Administration and Regulatory Affairs Department
Strategic Purchasing Division

Bill White
Mayor

Calvin D. Wells
City Purchasing Agent
P.O. Box 1562
Houston, Texas 77251-1562

March 27, 2009

F. 832.393.8755
<https://purchasing.houstontx.gov>

Subject: Letter of Clarification No. 3
Fertilizers, Herbicides, Insecticides and Non-Ionic
Surfactant for the Houston Airport System

Reference: Invitation to Bid (ITB) No.: S49-S23166

To All Prospective Suppliers:

This Letter of Clarification is issued for the following reason:

- To revise the above referenced solicitation as follows:
 1. At the City's electronic website, Group No. 1, Item Nos. 1 thru 15 have **changed**.
 2. At the City's electronic website, Group No. 2, Item No. 21, the quantity has been **increased**.
 3. At the City's electronic website, Group No. 2, Item No. 22 has been **added**.
 4. At the City's electronic website, Group No. 2, the following description has been **added** to all line items: "Supplier shall provide product only."
 5. In Section A, page 2 of 18, **remove** the phrase "FIRM PRICES ARE TO BE QUOTED FOR THE FIRST THREE (3) MONTH PERIOD"
 6. In Section B, **replace** pages 4, 5, 6 and 7 of 18 with the attached pages 4, 5, 6 and 7 of 18 marked "REVISED MARCH 27, 2009"
 7. An **attachment** is being included consisting of 13 pages and is titled "Soil Analysis Report". Note: "Copies of Soil Analysis Reports have been provided for informational purposes only."

Due to the aforementioned change to the e-bidding items you may need to edit your bid. To do so, please select the "Bid Number" and proceed accordingly.

This Letter of Clarification will be considered part of the solicitation referenced above.

Furthermore, it is the responsibility of each Supplier to obtain any previous Letter(s) of Clarification associated with this solicitation.

Norbert Aguilar
Procurement Specialist
Strategic Purchasing Division
832-393-8788


NA:DRH:na
Attachment: Soil Analysis Report

Partnering to better serve Houston

SECTION B.

CITY OF HOUSTON
TECHNICAL SPECIFICATIONS
FOR
FERTILIZERS, HERBICIDES, INSECTICIDES AND NON-IONIC SURFACTANT
FOR THE
HOUSTON AIRPORT SYSTEM

1.0 SCOPE OF SERVICES:

1.1 Product and Spreader Services:

- 1.1.1 Supplier shall furnish limestone and furnish/mix blended fertilizer as per City of Houston requirements based on soil samples.
- 1.1.2 Supplier shall provide all transportation, supervision, personnel, materials, insurance, Department of Transportation permits and all necessary equipment to deliver, off-load and spread blended fertilizer and limestone at locations designated by the City of Houston.
- 1.1.3 Spreader services shall commence immediately after delivery of product and shall be completed during the same day of delivery, subject to weather conditions. If unable to complete spreader services during the same day of delivery, supplier shall return the next working day to complete spreader services, or return as directed by the Houston Airport System (HAS) Representative. Spreader services shall be performed at these designated locations:
 - 1.1.3.1 George Bush Intercontinental Airport (approximately 1,200 acres)
 - 1.1.3.2 Ellington Field Airport (approximately 800 acres)
 - 1.1.3.3 HAS property - West (approximately 300 acres), Brookshire, Texas area
- 1.1.4 License's and Certifications, "Supplier shall have and maintain all "applicable" State of Texas and federal licenses/certifications for the sale of pesticides, insecticides and fertilizers."

1.2 Access/Control of Premises:

- 1.2.1 Access to airport premises and operation areas shall be limited to supplier's personnel and those HAS employees and/or individuals authorized by the Director or its designee and escorted by authorized City personnel. Supplier shall conform to such identification and security procedures, as the Director or its designee may deem necessary. Access to the premises shall be strictly controlled. Officers, employees or agent of the Supplier shall never enter restricted or operational areas of the Airport without the express permission of the Director or its designee or any other governmental bodies having jurisdiction, and the Supplier hereby assumes full liability arising from any such unauthorized incursions.
- 1.2.2 Security and Badging, Contractor shall comply with all applicable Federal rules governing security at the airport(s), as may be amended from time to time.
 - 1.2.2.1 All on-site personnel of Contractor, including sub-contractor's, who perform Work on the Agreement, are required to undergo a fingerprint-based criminal history records check. Fingerprints are collected at the airport(s) Badging Office and submitted electronically for investigation. The Project Manager shall have additional training at HAS to approve badging requests for Contractor personnel.

1.2 Access/Control of Premises (Continued):

- 1.2.2.2 Contractor shall obtain HAS security badges for its personnel performing Work on-site, including its sub-contractor's personnel. On-site personnel shall wear identification badges at all times while on airport(s) property. The cost of badges, which is subject to change, is currently \$45.00 each at (IAH). Costs for the fingerprint-based criminal history records check are reflected in the cost of the badges. Contractor is responsible for the cost of badges, including replacements thereof. Contractor personnel losing badges will be charged for replacement badges at the then current rate.
- 1.2.2.3 Contractor shall ensure a sufficient number of badged personnel are available at all times to perform the Work.
- 1.2.2.4 Contractor acknowledges that fines or penalties associated with non-compliance with security regulations must be reimbursed to HAS.

1.3 Application of Chemicals:

Type, quantity, frequency of chemicals shall be determined by the City of Houston Airport System based on crop needs.

1.4 Material Safety Data Sheet:

The Supplier shall provide Material Safety Data Sheets (MSDS) for every product delivered (bulk, individual container type).

1.5 Emergency Evacuation:

In case of an emergency while contractor and its crew are on site, the Director or its designee may direct the Supplier to terminate all work and clear the area of equipment and/or personnel. Supplier shall comply to such an order safely and with all possible speed.

2.0 PRICE ADJUSTMENT:

2.1 Producer Price Index (PPI):

Price adjustments may be authorized based upon the latest version of the Producer Price Index (PPI), "Pesticide, fertilizer, and other agricultural chemical mfg (http://www.bls.gov/data/home.htm_pcu_3253)" as published by the U.S. Department of Labor, Bureau of Labor Statistics.

2.2 Price Decreases:

Supplier shall submit a price decrease in accordance with the methodology outlined in this section at any time during the term of award that a price decrease occurs. Supplier shall immediately notify the City Purchasing Agent of price decreases in the same manner as for price increases. The price decrease shall become effective upon the 18th day of the fourth month (associated calculated month).

2.3 Price Increases:

2.3.1 Supplier may request a price increase in accordance with the methodology outlined in this section after approximately three (3) months from the bid opening date of the bid received by the City Secretary of the City of Houston. Subsequent price increases may be requested after approximately three (3) months from the date of the previously approved price increase.

2.3 Price Increases (Continued):

2.3.2 For establishing the “Base Price – Initial Pricing” and “Subsequent Pricing”, the Supplier must submit a letter stating the amount by line item. The letter must illustrate the methodology as outlined in this section by stating the index value of base period, index value at time of calculation, base price, adjusted price, actual dollar difference, and percentage of the price increase. The letter must be sent to the address shown below. If the City Purchasing Agent approves the price increase, he or she shall notify Supplier in writing; the price increase shall become effective upon the 18th day of the fourth month (associated calculation month). **Supplier shall submit its request for increase within thirty (30) calendar days after the 18th day of the fourth month (associated calculation month) or when the final index is available. Failure to submit the request within the specified timeframe may be cause for denial of an increase for the subsequent 3-1/2 month period.**

**City Purchasing Agent
City of Houston
P.O. Box 1562
Houston, TX 77251**

2.3.3 If the City Purchasing Agent approves the price increase, he or she shall notify Supplier in writing; the price increase shall become effective upon the 18th day of the fourth month (associated calculation month). If the City Purchasing Agent does not approve Supplier's price increase, Supplier may terminate its performance upon sixty (60) days advance written notice to the City Purchasing Agent. Termination of performance is Supplier's only remedy if the City Purchasing Agent does not approve the price increase.

2.3.4 If, at any time after approving a price increase, the City Purchasing Agent determines that the City can obtain the same item at a lower price from a different source without violating the State bid laws, the City may then purchase the item from the lower price source without any obligation to the Supplier.

2.4 Mechanism to re-establish pricing after bid award (Initial Pricing):

2.4.1 The initial award pricing will be determined by adjusting the awarded bid's pricing in accordance with the documented percent of change between the monthly price index for pesticides, fertilizers, and other agricultural chemicals beginning the first month after the month bids were received by the City Secretary (Month One), i.e. February, as verified and reported by the Producer Price Index (PPI), “Pesticide, fertilizer, and other agricultural chemical mfg (<http://www.bls.gov/data/home.htm>, pcu 3253)” and the monthly price index for pesticides, fertilizers, and other agricultural chemicals from the third month after the month bids were received by the City Secretary (Month Three), i.e. April, as verified and reported by the Producer Price Index (PPI), “Pesticide, fertilizer, and other agricultural chemical mfg (<http://www.bls.gov/data/home.htm>, pcu 3253)”.

2.4.2 Note (1): The re-established pricing shall be valid until the 18th day of the fourth month. The preceding three month period (first month and third month only) will be used to calculate price increase/decrease for the next 3-1/2 month period. The first month after the month bids were received will be regarded as month number one of the first 3-month calculation period.

2.4.3 Note (2): The Council Award date will not be a factor in calculations, the percentage increase/decrease will be applied utilizing Month One and Month Three – only.

2.5 Subsequent Price increases or Decreases

2.5.1 Price increases and price decreases shall be evaluated/determined based on the percentage difference (increase/decrease) between the first month and third month price indexes. **Subsequent price increases/decreases shall be applied to the last adjusted price of the item(s) to be purchased.**

2.5 Subsequent Price Increases or Decreases (Continued):

- 2.5.2 Price increases and price decreases shall be determined by utilizing the U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI), Pesticide, fertilizer, and other agricultural chemical mfg (<http://www.bls.gov/data/home.htm>, pcu 3253), based on the percentage increase/decrease between the first-published version of the first month's index (month number one of the 3-month period) and the first-published version of the third month's index (month number three of the 3-month period). The percentage increase/decrease shall be determined on the 18th day of every fourth month or when the final index is available. However, should the contract agreement be scheduled to expire before the fourth month can be used in the calculation, the preceding months (percent change from a minimum of two months) may be used in the calculation provided the months have not already been used.
- 2.5.3 The price of the item will be re-calculated and established after the 18th day of the fourth month and will extend until the next calculation has been determined and accepted, in the following fourth month.
- 2.5.4 As stated by the Bureau of Labor Statistics (PPI), "All indexes are subject to revision four months after original publication", the City shall recognize this statement as a means to readjust up/down the calculated percentage.
- 2.5.5 Vendor to provide the City with a letter stating the requested increase, as per the U.S. Department of Labor, Bureau of Labor Statistics, after the data for the final/third month has been published. Subject to verification of data by the City of Houston. For example, see table below:

Year	Jan	Feb	Mar	Apr	May 18	Jun	Jul	Aug 18	Sep	Oct	Nov 18	Dec
2008												
%	11.5	13.8	15.5	19.2	21.9	28.5	26.8	29.0	18.7	6.9	5.9	
					Initial Price Adj. calculation			Subsequent Pricing Calculation			Subsequent Pricing Calculation	

2.6 Formula for initial pricing (re-established pricing):

Bid Due Date (Received by City Secretary): January.
 Month One: February, 13.8 will be used in the calculation.
 Month Three: April, 19.2 will be used in the calculation.

Calculation to be made on the 18th day of the fourth month (or when the final index is available): May.

Bidder's original price: \$40.00
 Formula: $13.8 - 19.2 = 5.4 \div 13.8 = 0.3931 \times 100 = 39.13\%$ increase
 Re-established pricing (Initial Pricing) of the item will be $\$40.00 \times 39.13 \div 100 = \15.65
 $\$40.00 + \$15.65 = \$55.65$
 Re-established pricing will be valid until August 18th.

2.7 Formula for price adjustment (subsequent pricing) number:

First Month: May, 21.9 will be used in the calculation.
 Third Month: July, 26.8 will be used in the calculation.
 Formula: $21.9 - 26.8 = 4.9 \div 21.9 = 0.2237 \times 100 = 22.37\%$ increase
 Initial Pricing of item (see above): \$55.65
 Subsequent Pricing: $\$55.65 \times 22.37 \div 100 = \12.45 , $\$55.65 + \$12.45 = \$68.10$
 New Price: \$68.10, to remain valid until November 18th.



Soil Analysis Report

Soil, Water and Forage Testing Laboratory
 Department of Soil and Crop Sciences
 345 Heep Center, 2474 TAMU
 College Station, TX 77843-2474
 979-845-4816 (phone)
 979-845-5958 (FAX)
 Visit our website: <http://soiltesting.tamu.edu>

Report generated for:
 Casundra Washington
 4500 Will Clayton
 Houston, TX 77032

Sample received on: 12/12/2008
 Printed on: 12/16/2008
 Area Represented: not provided

Harris County

Laboratory Number: 258984

Customer Sample ID: North Complex East 1

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	5.8	(5.8)	-	Mod. Acld							
Conductivity	62	(-)	umho/cm	None							
Nitrate-N	1	(-)	ppm								95 lbs N/acre
Phosphorus	2	(50)	ppm								115 lbs P2O5/acre
Potassium	19	(150)	ppm								215 lbs K2O/acre
Calcium	542	(180)	ppm								0 lbs Ca/acre
Magnesium	92	(50)	ppm								0 lbs Mg/acre
Sulfur	15	(13)	ppm								0 lbs S/acre
Sodium	165	(-)	ppm								0 lbs S/acre
Iron	18.94	(4.25)	ppm								
Zinc	0.17	(0.81)	ppm								6 lbs Zn/acre
Manganese	0.53	(1.00)	ppm								1 lbs Mn/acre
Copper	0.20	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement										1.00 tons 100ECCE/acre	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Soil Analysis Report

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Department of Soil and Crop Sciences
345 Heep Center, 2474 TAMU
College Station, TX 77843-2474
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: <http://soiltesting.tamu.edu>

Harris County
Laboratory Number: 258985
Customer Sample ID: North Complex East 2

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	5.4	(5.8)	-	Mod. Acid							
Conductivity	79	(-)	umho/cm	None							
Nitrate-N	3	(-)	ppm								
Phosphorus	3	(50)	ppm								
Potassium	35	(150)	ppm								
Calcium	633	(180)	ppm								
Magnesium	146	(50)	ppm								
Sulfur	19	(13)	ppm								
Sodium	230	(-)	ppm								
Iron	13.01	(4.25)	ppm								
Zinc	0.15	(0.81)	ppm								
Manganese	0.43	(1.00)	ppm								
Copper	0.20	(0.16)	ppm								
Boron											
Limestone Requirement											1.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Soil Analysis Report

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Visit our website: <http://soiltesting.tamu.edu>

Harris County
Laboratory Number: 258986
Customer Sample ID: North Complex West 1

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	5.1	(5.8)	-	Strongly Acid							
Conductivity	45	(-)	umho/cm	None							
Nitrate-N	4	(-)	ppm								90 lbs N/acre
Phosphorus	5	(50)	ppm								110 lbs P2O5/acre
Potassium	25	(150)	ppm								205 lbs K2O/acre
Calcium	346	(180)	ppm								0 lbs Ca/acre
Magnesium	64	(50)	ppm								0 lbs Mg/acre
Sulfur	14	(13)	ppm								0 lbs S/acre
Sodium	146	(-)	ppm								
Iron	7.12	(4.25)	ppm								
Zinc	0.24	(0.81)	ppm								6 lbs Zn/acre
Manganese	0.75	(1.00)	ppm								1 lbs Mn/acre
Copper	0.12	(0.16)	ppm								0.5 lbs Cu/acre
Boron											
Limestone Requirement											1.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Copper: Limited supporting research data is currently available.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
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Visit our website: <http://soiltesting.tamu.edu>

Harris County
Laboratory Number: 258987
Customer Sample ID: North Complex West 2
Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.5	(5.8)	-	Slightly Alkaline							
Conductivity	120	(-)	umho/cm	None							
Nitrate-N	1	(-)	ppm								95 lbs N/acre
Phosphorus	4	(50)	ppm								115 lbs P2O5/acre
Potassium	37	(150)	ppm								185 lbs K2O/acre
Calcium	1,351	(180)	ppm								0 lbs Ca/acre
Magnesium	165	(50)	ppm								0 lbs Mg/acre
Sulfur	23	(13)	ppm								0 lbs S/acre
Sodium	206	(-)	ppm								
Iron	5.63	(4.25)	ppm								
Zinc	0.20	(0.81)	ppm								6 lbs Zn/acre
Manganese	0.70	(1.00)	ppm								1 lbs Mn/acre
Copper	0.20	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Soil Analysis Report

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Harris County
Laboratory Number: 258988
Customer Sample ID: South Complex East

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess	Fertilizer Recommended
pH	5.9	(5.8)	-	Mod. Acid							
Conductivity	65	(-)	umho/cm	None							
Nitrate-N	3	(-)	ppm								90 lbs N/acre
Phosphorus	7	(50)	ppm								105 lbs P2O5/acre
Potassium	18	(150)	ppm								215 lbs K2O/acre
Calcium	936	(180)	ppm								0 lbs Ca/acre
Magnesium	100	(50)	ppm								0 lbs Mg/acre
Sulfur	12	(13)	ppm								5 lbs S/acre
Sodium	157	(-)	ppm								
Iron	16.44	(4.25)	ppm								
Zinc	0.23	(0.81)	ppm								6 lbs Zn/acre
Manganese	1.52	(1.00)	ppm								0 lbs Mn/acre
Copper	0.24	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Sulfur: Available sulfur may be found deeper in soil profile, thus limiting any response to added sulfur.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Soil Analysis Report

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Visit our website: <http://soiltesting.tamu.edu>

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County
Laboratory Number: 258989
Customer Sample ID: South Complex West

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	7.4	(5.8)	-	Slightly Alkaline							
Conductivity	150	(-)	umho/cm	None							
Nitrate-N	1	(-)	ppm								95 lbs N/acre
Phosphorus	13	(50)	ppm								90 lbs P2O5/acre
Potassium	29	(150)	ppm								200 lbs K2O/acre
Calcium	2,177	(180)	ppm								0 lbs Ca/acre
Magnesium	132	(50)	ppm								0 lbs Mg/acre
Sulfur	16	(13)	ppm								0 lbs S/acre
Sodium	133	(-)	ppm								
Iron	8.35	(4.25)	ppm								
Zinc	0.63	(0.81)	ppm								2 lbs Zn/acre
Manganese	3.14	(1.00)	ppm								0 lbs Mn/acre
Copper	0.35	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Soil Analysis Report

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Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County

Laboratory Number: 258990

Customer Sample ID: South Complex Middle

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Med	High	VHigh	Excess.	Fertilizer Recommended	
pH	7.4	(5.8)	-	Slightly Alkaline								
Conductivity	139	(-)	umho/cm	None								
Nitrate-N	2	(-)	ppm									95 lbs N/acre
Phosphorus	9	(50)	ppm									100 lbs P2O5/acre
Potassium	33	(150)	ppm									190 lbs K2O/acre
Calcium	1,972	(180)	ppm									0 lbs Ca/acre
Magnesium	103	(50)	ppm									0 lbs Mg/acre
Sulfur	13	(13)	ppm									0 lbs S/acre
Sodium	131	(-)	ppm									
Iron	8.52	(4.25)	ppm									
Zinc	0.44	(0.81)	ppm									4 lbs Zn/acre
Manganese	1.60	(1.00)	ppm									0 lbs Mn/acre
Copper	0.33	(0.16)	ppm									0 lbs Cu/acre
Boron												
Limestone Requirement										0.00 tons 100ECCE/acre		

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Soil Analysis Report

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Department of Soil and Crop Sciences
345 Heep Center, 2474 TAMU
College Station, TX 77843-2474
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: <http://soiltesting.tamu.edu>

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County
Laboratory Number: 258991
Customer Sample ID: N. Lee Rd West Field

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended	
pH	8.2	(5.8)	-	Mod. Alkaline								
Conductivity	231	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	6	(-)	ppm								85 lbs N/acre	
Phosphorus	6	(50)	ppm								110 lbs P2O5/acre	
Potassium	34	(150)	ppm								190 lbs K2O/acre	
Calcium	2,602	(180)	ppm								0 lbs Ca/acre	
Magnesium	289	(50)	ppm								0 lbs Mg/acre	
Sulfur	20	(13)	ppm								0 lbs S/acre	
Sodium	195	(-)	ppm									
Iron	5.71	(4.25)	ppm									
Zinc	0.17	(0.81)	ppm								6 lbs Zn/acre	
Manganese	0.48	(1.00)	ppm								2 lbs Mn/acre	
Copper	0.21	(0.16)	ppm								0 lbs Cu/acre	
Boron												
Limestone Requirement										0.00 tons 100ECCE/acre		

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

Soil Analysis Report

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Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County
Laboratory Number: 258992
Customer Sample ID: N. Lee Rd Equine TR East

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Med	High	VHigh	Excess.	Fertilizer Recommended
pH	8.2	(5.8)	-	Mod. Alkaline							
Conductivity	158	(-)	umho/cm	None							
Nitrate-N	3	(-)	ppm								90 lbs N/acre
Phosphorus	4	(50)	ppm								115 lbs P2O5/acre
Potassium	72	(150)	ppm								125 lbs K2O/acre
Calcium	3,866	(180)	ppm								0 lbs Ca/acre
Magnesium	186	(50)	ppm								0 lbs Mg/acre
Sulfur	14	(13)	ppm								0 lbs S/acre
Sodium	152	(-)	ppm								
Iron	5.39	(4.25)	ppm								
Zinc	0.20	(0.81)	ppm								6 lbs Zn/acre
Manganese	1.55	(1.00)	ppm								0 lbs Mn/acre
Copper	0.26	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Report generated for:
Casundra Washington
4500 Will Clayton
Houston, TX 77032

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Harris County

Laboratory Number: 258993

Customer Sample ID: N. Lee Rd Fenee Lot East

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Sample received on: 12/12/2008

Printed on: 12/16/2008

Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	7.8	(5.8)	-	Mod. Alkaline								
Conductivity	137	(-)	umho/cm	None								Fertilizer Recommended
Nitrate-N	1	(-)	ppm									95 lbs N/acre
Phosphorus	6	(50)	ppm									110 lbs P2O5/acre
Potassium	41	(150)	ppm									180 lbs K2O/acre
Calcium	2,505	(180)	ppm									0 lbs Ca/acre
Magnesium	240	(50)	ppm									0 lbs Mg/acre
Sulfur	18	(13)	ppm									0 lbs S/acre
Sodium	168	(-)	ppm									
Iron	4.82	(4.25)	ppm									
Zinc	0.23	(0.81)	ppm									6 lbs Zn/acre
Manganese	0.85	(1.00)	ppm									1 lbs Mn/acre
Copper	0.17	(0.16)	ppm									0 lbs Cu/acre
Boron												
Limestone Requirement											0.00 tons 100ECCE/acre	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

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Houston, TX 77032

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County

Laboratory Number: 258994
Customer Sample ID: Tifton Field 1960

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	6.9	(5.8)	-	Slightly Acid							
Conductivity	141	(-)	umho/cm	None							
Nitrate-N	2	(-)	ppm								95 lbs N/acre
Phosphorus	8	(50)	ppm								105 lbs P2O5/acre
Potassium	27	(150)	ppm								205 lbs K2O/acre
Calcium	1,132	(180)	ppm								0 lbs Ca/acre
Magnesium	137	(50)	ppm								0 lbs Mg/acre
Sulfur	16	(13)	ppm								0 lbs S/acre
Sodium	180	(-)	ppm								
Iron	12.88	(4.25)	ppm								
Zinc	0.47	(0.81)	ppm								4 lbs Zn/acre
Manganese	6.04	(1.00)	ppm								0 lbs Mn/acre
Copper	0.34	(0.16)	ppm								0 lbs Cu/acre
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Soil Analysis Report

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4500 Will Clayton
Houston, TX 77032

Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County
Laboratory Number: 258995
Customer Sample ID: 1960 Field N V56

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	7.4	(5.8)	-	Slightly Alkaline								
Conductivity	114	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	3	(-)	ppm									90 lbs N/acre
Phosphorus	5	(50)	ppm									110 lbs P2O5/acre
Potassium	30	(150)	ppm									200 lbs K2O/acre
Calcium	1,430	(180)	ppm									0 lbs Ca/acre
Magnesium	165	(50)	ppm									0 lbs Mg/acre
Sulfur	13	(13)	ppm									5 lbs S/acre
Sodium	165	(-)	ppm									
Iron	9.89	(4.25)	ppm									
Zinc	0.50	(0.81)	ppm									4 lbs Zn/acre
Manganese	3.43	(1.00)	ppm									0 lbs Mn/acre
Copper	0.33	(0.16)	ppm									0 lbs Cu/acre
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Sulfur: Available sulfur may be found deeper in soil profile, thus limiting any response to added sulfur.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.

Soil Analysis Report

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4500 Will Clayton
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Sample received on: 12/12/2008
Printed on: 12/16/2008
Area Represented: not provided

Harris County
Laboratory Number: 258996
Customer Sample ID: Chanute Rd Field

Crop Grown: **IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)**

Analysis	Results	CL*	Units	Ex.Low	V.Low	Low	Mod	High	V.High	Excess.	Fertilizer Recommended	
pH	8.2	(5.8)	-	Mod. Alkaline								
Conductivity	150	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	3	(-)	ppm									90 lbs N/acre
Phosphorus	8	(50)	ppm									100 lbs P2O5/acre
Potassium	27	(150)	ppm									200 lbs K2O/acre
Calcium	6,210	(180)	ppm									0 lbs Ca/acre
Magnesium	113	(50)	ppm									0 lbs Mg/acre
Sulfur	30	(13)	ppm									0 lbs S/acre
Sodium	140	(-)	ppm									
Iron	4.52	(4.25)	ppm									
Zinc	0.18	(0.81)	ppm									6 lbs Zn/acre
Manganese	2.07	(1.00)	ppm									0 lbs Mn/acre
Copper	0.28	(0.16)	ppm									0 lbs Cu/acre
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended.

Nitrogen Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

Zinc: Zinc recommendation is based on single broadcast application each 2-3 years.