

VENDOR INFORMATION

Date:	08-22-2023
Firm Name:	Harrell's, LLC
Address:	5105 New Tampa Hwy
City/State/Zip Code:	Lakeland, FL 33815
Telephone Number:	800-282-8007
Fax Number:	
Contact Person:	Greg Nicoll - VP of Turf Sales, North
Contact Person Email:	GNicoll@Harrells.com

Firm Established:	1941
Years in Business:	82 years

Type of Organization: (Circle One)
a. Individual
b. Partnership
c. Corporation
d. Joint Venture
e. Other

**SIGNATURE PAGE**

The undersigned hereby declares that he/she has carefully examined the general conditions and specifications and will provide Groundskeeping Materials, as described herein for the prices set forth in this proposal. Any changes to the specifications and its impact on the final cost will be discussed and mutually agreed upon before the delivery of the services.

It is understood that all proposed prices shall remain in effect for at least one hundred twenty (120) days from the date of the proposal opening to allow for the award and that, if chosen the successful vendor, the prices will remain firm through invoice.

The proposer affirms that he/she is duly authorized to execute this proposal, that this company, corporation, firm, partnership or individual has not prepared this proposal in collusion with any other proposer and that the contents of this proposal as to prices, terms or conditions have not been communicated by the undersigned, nor by any employee or agent, to any competitor, and will not be, prior to the award and the proposer has full authority to execute any resulting contract awarded as the result of, or on the basis of the proposal.

By submission of a response, the Proposer agrees that at the time of submittal, he/she: (1) has no interest (including financial benefit, commission, finder's fee, or any other remuneration) and shall not acquire any interest, either direct or indirect, that would conflict in any manner or degree with the performance of Proposer's services, or (2) benefit from an award resulting in a "Conflict of Interest." A "Conflict of Interest" shall include holding or retaining membership, or employment, on a board, elected office, department, division or bureau, or committee sanctioned by and/or governed by the City of Rochester Hills. Proposers shall identify any interests, and the individuals involved, on separate paper with the response and shall understand that the City, at its discretion may reject their proposal.

Representative's Name: Ella Kimbrel

Title: Senior Vice President, Human Resources

Signature: 

Dated: 09-13-2023

## 2. Executive Summary

Harrell's LLC proudly submits the following contract proposal to include:

- A comprehensive product and service offering including granular and liquid fertilizers, plant protectants including but not limited to herbicides, fungicides, insecticides, grass seeds and a balance of lines including materials and supplies.
- Free training with CEU credits
- Bulk Spreading in certain states
- Free Delivery
- Free Agronomic Support from our Agronomy Experts
- [www.myHarrells.com](http://www.myHarrells.com) customer web portal

## 3. Proposal Profile

Harrell's, LLC was established in Lakeland, Florida in 1941 and over the past 82 years has grown into a worldwide producer and distributor of customized, agronomic solutions. This includes nutritional solutions in both granular and liquid form to help your turf, landscape and plants grow and thrive. With 29 locations across the United States, Harrell's has built an infrastructure to ensure timely and efficient shipments to over 40 states coast to coast, and an international network that currently ships to 9 countries on 3 continents.

Harrell's corporate office is located at 5105 New Tampa Hwy, Lakeland, Florida. On December 20, 2007 Harrell's became incorporated in the State of Florida, and on September 30, 2016, Harrell's became an employee-owned company through the establishment of Harrell's Employee Stock Ownership Plan (ESOP). Harrell's has 390 employees, which includes 119 Territory Managers who specialize in their agronomic field, and 5 Directors of Agronomy who conduct research, product trials, product development, and assist Territory Managers in creating customized solutions for customers to protect against pests, environmental threats, and climate extremes.

Harrell's Coating Solutions: Makers of POLYON® fertilizer from Harrell's that has been America's premier controlled release fertilizer for turfgrass and ornamental applications since 1992.

Harrell's ProtectMAX®: Broad-spectrum line up of chemistry formulations including contact and systemic fungicides and herbicide.

Harrell's SprayMAX®: Complete line of adjuvants, colorants, and essential utility products.

Harrell's MAX®: Liquid foliar nutritionals that include over 30 different products with specific engineered formulations for turfgrass and ornamentals

Harrell's is an Authorized Distributor for (but not limited to): ENVU (formally Bayer) ,Syngenta, Nufarm, BASF, Corteva (formally DOW Agrosience), FMC, PBI Gordon, SEPRO, PURE SEED, Mountain View Seed.

See sample of additional vendors in: [Attachment B\\_Letters of Authorization](#).

#### 4. Method of Approach

a. No other companies will be involved in servicing this account. Harrell's will be doing all the billing, invoicing, and delivery. For small shipments needed overnight, Harrell's reserves right to use FedEx or LTL carrier.

b. Harrell's manufacturing and distribution facilities are strategically located across America. With 29 distribution facilities totaling over 550,000 sq ft of warehouse space spread across the country, Harrell's distribution network is designed to be able to reach our customer base swiftly and efficiently. Locations include:

Atlanta, GA  
Avon Park, FL  
Birmingham, AL  
Boston, MA  
Charlotte, NC  
Chattanooga, TN  
Chicago, IL  
Dallas, TX  
Denver, CO  
Detroit, MI

Columbus, OH  
Hartford, CT  
Houston, TX  
Indianapolis, IN  
Lakeland, FL  
Los Angeles, CA  
Lubbock, TX  
Miami, FL  
Oklahoma City, OK  
Palm Springs, CA

Philadelphia, PA  
Phoenix, AZ  
Pittsburgh, PA  
Portland, OR  
Richmond, VA  
San Antonio, TX  
San Diego, CA  
San Jose, CA  
Syracuse, NY

c. Describe how your products meet the requirements of this solicitation:

i. Harrell's is not simply a distributor of products. Harrell's offers a team to assist our customers with solutions by assisting with agronomic planning to create a balanced approach for a healthy lawn and landscape. In addition to great customer service and delivery, Harrell's offers a series of tools through MyHarrell's web portal that include quick links to labels, SDS, and calculators to assist any applicator with product requirements.

ii. Seed analysis provided in: [Attachment C\\_Seed Tech Sheets](#)

iii. Below are links to Harrell's catalogs and website that represent our Plant Health Care product line.

[Harrell's Protect Max](#)

[Harrell's Liquid Foliar Nutritionals](#)

[Harrell's Spray Max](#)

[Harrell's Hydro Max](#)

[Harrell's Website](#)

d. Generally, fertilizers and plant protectants have a decent shelf life. 2-5 years. The products sold are usually utilized within a year's timeframe of purchase.

e. OMNIA Partner Agencies with have the opportunity to participate in yearly Early Order Programs that are offered by our manufacturing partners with exclusive programs offered by Harrell's. Benefits include 10-30% savings on purchases, with complimentary storage and delivery. Extended terms are also offered.

f. Every participating agency with be assigned to their personal Territory Manager at Harrell's. Orders can be placed directly with our concierge service via phone, email or text message. Orders, deliveries, and invoice history can be sourced on the Agency's personal account page on [www.Harrells.com/MyHarrells](http://www.Harrells.com/MyHarrells).

g. All product purchases are fully guaranteed. In addition, OMNIA Partners Agencies have the added option of training, education, and technical support from the support staff at Harrell's that include but are not limited to 5 Ph.D.'s who serve as Directors of Agronomy.

h. Describe your delivery commitment:

i. Case goods purchased are usually delivered in 1-3 business days and palletted products such as seed and fertilizer are delivered in 1-2 weeks from purchase. In special circumstances or emergency need product can be shipped same day or overnight.

ii. Harrell's prides itself with customer service. In many cases, Harrell's works with the customer as to how they would like the situation resolved. For example, if a bag was torn but the product integrity was good, we would simply not charge for the unit. In a situation such as a wrong order, Harrell's would make the effort to pick up the purchase at no cost to the customer.

i. Invoices are posted and sent to customers the day after the product is shipped. Invoices are created based on the items received on the original order. Options for receiving invoices are US Postal Service, Email, or Fax. Electronic invoicing is not currently available. Summary invoicing is not currently available. Sample invoice provided in: [Attachment D\\_Sample Invoice](#).

j. POLYON® fertilizer from Harrell's has been America's premier controlled-release fertilizer for turfgrass applications since 1992.

In addition, Harrell's EarthMAX® Organic Foliar and Soil Additive is intended for use on trees, shrubs, grass, vegetables, flowers, and crops. Applying this product to in-ground and container plants may aid in micronutrient uptake and increase water retention. EarthMAX® is OMRI certified for organic use.

k. POLYON® innovation is a proprietary process that includes multiple monomers to establish a physical bond to the substate. Using our proprietary POLYGRAPH® program, Harrell's can develop the right prescription for the need. In fact, POLYON® is so predictable its performance can be mapped out and evaluated even before applying the product.

l. POLYON® fertilizers do not leach or volatilize into the atmosphere. The controlled release technology is engineered to release a specific amount of nutrients for plant uptake. This eliminates unnecessary leaching into waterways.

m. Each Agency will be assigned a Harrell's Territory Manager who will regularly call on the customer updating them of industry news and products. In addition, the Harrell's Marketing team regularly informs our customers of news and product updates through email, industry trade publications and social media platforms.

n. The Harrell's Compliance team has a strict policy of tracking sales into states. Products are immediately flagged and locked out by our ordering system if they are not approved to be sold in a particular region. Customers are informed by Harrell's Territory Managers if a product is eligible to be used in a particular market.

o. Harrell's can provide:

- Bulk fertilizer application or services in most states.
- Free access to our Directors of Agronomy. Multiple Ph.D's who are experts in soil science, horticulture, plant pathology, weed management and plant nutrition.
- Free online CEU courses and seminars throughout the country.

p. Harrell's Vice President of Finance, Kevin English will provide a monthly summary on the 15<sup>th</sup> of each month to the OMNIA contract manager. Sample Report can be found in [Attachment E\\_Sample Report](#).

q. All members will receive Best In Market Pricing. Price lists are monitored monthly, and changes are made when necessary to accommodate the market and industry volatility. If changes are in need, Harrell's will provide an updated price list to the City of Rochester Hills with a detailed explanation of the price change. The price list will show the discounted OMNIA prices

r. Harrell's Vice President of Finance, Kevin English will provide a monthly summary on the 15<sup>th</sup> of each month to the OMNIA contract manager.

s. Harrell's procurement and inventory teams work daily to source the best pricing in the market. Purchasing raw materials by the barge load months ahead of actual needs has afforded Harrell's to be in great position for material in stock at a competitive price. Harrell's ordering, dispatch, and

invoicing systems are linked together in order to see “real time” inventory and forecasting. This assists the team when ordering truckloads of material and maintaining controlled inventories.

t. Harrell’s is not simply a distributor for products; Harrell’s offers a team to assist our customers with solutions by assisting with agronomic planning to create a balanced approach for a healthy lawn and landscape. In addition to great customer service and delivery, Harrell’s offers a series of tools through MyHarrells web portal that include quick links to labels, SDS, and calculators to assist any applicator with product requirements. In addition, our customers have the added option of training, education (including online CEU courses) and technical support from the support staff at Harrell’s that include but are not limited to 5 Ph.D.’s who serve as Directors of Agronomy.

## **5. Qualifications and Experience**

a. Harrell’s, LLC was established in Lakeland, Florida in 1941 and over the past 82 years has grown into a worldwide producer and distributor of customized, agronomic solutions. This includes nutritional solutions in both granular and liquid form to help your turf, landscape and plants grow and thrive. With 29 locations across the United States, Harrell’s has built an infrastructure to ensure timely and efficient shipments to over 40 states coast to coast, and an international network that currently ships to 9 countries on 3 continents.

b. Gross Sales:

2021: \$397M

2022: \$444M

c. Harrell’s has 387 employees, which includes 116 Territory Managers who specialize in their agronomic field, and 5 Directors of Agronomy who conduct research, product trials, product development, and assist Territory Managers in creating customized solutions for customers to protect against pests, environmental threats, and climate extremes.

Harrell’s has 8 Ph.D.’s who are a part of the Agronomy and Compliance Team. We have many team members who have obtained their Master’s Degree in Agronomy as well as receiving their certifications as Certified Golf Course Superintendents (CGCS), issued from the GCSAA and Certified Professional Agronomist (CPAg) issued by the American Society of Agronomy.

d. Harrell’s is a leading producer and distributor of customized, agronomic solutions – not merely “products”. This includes nutritional solutions in both granular and liquid form to help your turf, landscape and plants grow and thrive. We also specialize in delivering solutions to help protect your world from pests, environmental threats, and climate extremes. Harrell’s also conducts extensive research trials and studies and invests strongly in product development to bring you the best and most effective solutions possible.

Customer References:

Collier County  
3299 Tamiami Trail East, Naples, FL 34112  
Catherine Fletcher  
[Catherine.Fletcher@colliercountyfl.gov](mailto:Catherine.Fletcher@colliercountyfl.gov)

Collier County School Board  
5775 Osceola Trail, Naples, FL 34109  
Sumeet Perez  
239-377-0624  
[Perezs7@collierschools.com](mailto:Perezs7@collierschools.com)

Commonwealth of Kentucky  
200 Mero Street, 5<sup>th</sup> Floor, Frankfort, KY 40622  
Keith Srutowski  
502-564-7007  
[Keith.srutowski@ky.gov](mailto:Keith.srutowski@ky.gov)

Broome County-New York  
60 Hawley Street, Binghamton, NY 13902  
Sullivan Murphy  
607-372-2093  
[mm36751@broomecountyny.gov](mailto:mm36751@broomecountyny.gov)

e. City of Rochester Hills key personnel:

Gregory Nicoll, Vice President of Sales (Primary Contact)  
Kevin English, Vice President of Finance (Reporting)  
Andrew Gilroy, Territory Manager, City of Rochester Hills, MI (Sales)  
Todd Gaynier, Operations Manager, MI (Deliveries)

f. Harrell's became an employee-owned company through the establishment of Harrell's Employee Stock Ownership Plan (ESOP) Each of the employee owners take great pride in making sound fiscal choices for Harrell's to maintain its financial strength.

g. Harrell's Core Values are non-negotiable and cover all aspects of what we do, from our employees to our customers, friends and communities. Harrell's is the leading producer and distributor of customized agronomic solutions, but our success is completely dependent on the success of our customers. We want to contribute to your success any way we can, helping you succeed regardless of a sale. These Core Values define us as a company and provide our employees a guide for conducting business with our partners for success:

1. Serve, Honor and Glorify God
2. Take Care of People
3. Grow our Financial Strength



- h. Harrell's response to the national program is included in [Attachment A\\_OMNIA Partners](#)
  - i. See Exhibit A, Section 2.0 in [Attachment A\\_OMNIA Partners](#).
  - ii. See Exhibit A, Section 3.0 in [Attachment A\\_OMNIA Partners](#).
  - iii. Harrell's is prepared to sign Attachment A, Exhibit B, OMNIA Partners Administration Agreement. We have no proposed exceptions to the OMNIA Partners Administration Agreement.

## 6. Prices and Resources

- a. Please see included Price Page.
- b. Harrell's maintains a cost advantage by being the largest golf distributor in the United States. Our buying power allows us to purchase the latest products at the most competitive prices. Pricing for this contract will be maintained by the Harrell's corporate office and will be consistent nationwide.
- c. Harrell's offers free delivery to all our customers.
- d. Pricing is the most favorable offered to local government agencies.
- e. Pricing is guaranteed for 1 year from the date the bid is awarded.
- f. Please see additional product pricing in: [Attachment G\\_Harrells Product Catalog](#)
- g. Harrell's will comply with all federal requirements applicable to the funding including, but not limited to the FEMA Special Conditions section located in the Federal Funds Certification Exhibit.
- h. OMNIA Partner Agencies with have the opportunity to participate in yearly Early Order Programs that are offered by our manufacturing partners with exclusive programs offered by Harrell's. Benefits include 10-30% savings on purchases, with complimentary storage and delivery. Extended terms are also offered. There are no additional discounts for volume orders or off-season purchases. Harrell's has no minimum purchase requirements, does not offer free goods, and does not maintain annual spending limits.
- i. Harrell's does not offer discounts for any particular ordering method.
- j. Net 30 days is our standard payment policy and we do not offer any discounts for early payments.
- k. Will payment be accepted via commercial credit card? ☒ Yes ☐ No
  - a. If yes, can commercial payment(s) be made online? ☒ Yes ☐ No

b. Will a third party be processing the commercial credit card payment(s)? X Yes  
\_\_\_\_ No

c. If yes, indicate the flat fee per transaction \$0.00 (as allowable, per Section 5.2.E of Visa Operating Regulations).

d. If “no” to above, will consideration be given to accept the card? \_\_\_\_\_ Yes \_\_\_\_\_ No

## COST PROPOSAL

The Cost Proposal lists products that will likely be purchased under the contract. This list is not all-inclusive. The following items are listed for the purpose of comparing discounts offered. Actual items and quantities will vary. The resulting Purchase Order will be awarded based upon the Price Schedule (discount/mark-up) as given, which shall be used to compute the prices below. The City reserves the right to exclude from the evaluation any sample items listed (e.g. If an item has been recently discontinued and was unknown by the City when this document was prepared). The expectation is that the successful Contractor shall provide their entire catalog of products at the pricing formula offered. Vendors should submit pricing for full catalog of products and services/a balance of line, including delivery rates, as well as national discounts as a pricing percentage discount offered in Excel format. The quantities shown are estimates only and the City reserves the right to increase or decrease amounts as circumstances may require.

### FERTILIZER, SOIL AMENDMENTS, HERBICIDES AND PESTICIDES AND GRASS SEED: Submit per unit pricing.

Item No.	Est. Annual Usage	Description	Manufacturer & Product Number	Package Size	Unit of Measure	Unit Cost	Extended Cost
		<b>Group 1 - Fertilizers</b>					
1	1,400 lbs.	14-25-12 Polyon Fertilizer	Harrell's #884189	50 lbs	Pound	\$ 0.5446 /lb.	\$ 762.44
2	2,250 lbs.	25-0-10 Polyon Fertilizer	Harrell's #822149	50 lbs	Pound	\$ 0.524 /lb.	\$ 1,170.00
		<b>Group 2 – Soil Amendments</b>					
1	3,600 lbs.	Verde-Cal G Greens Grade	Omya #200315	50 lbs	Pound	\$0.3734 /lb.	\$ 1,344.24
2	2,500 lbs.	Turfacer Quick Dry	Turfacer Athletics #200006	50 lbs	Pound	\$0.2962 /lb.	\$ 740.50
		<b>Group 3 – Herbicides and Pesticides</b>					
1	150 lbs.	Freehand 1.75G Herbicide	BASF #FREEHA	50 lbs	Pound	\$ 1.97 /lb.	\$ 295.50
2	5 gallons	Triplet SF	NuFarm #TRIPLET2.5	2.5 gal	Gallon	\$ 38.912 /gal.	\$ 194.56
		<b>Group 4 – Grass Seed</b>					
1	3,600 lbs.	Elite Sunny Seed Mix	Pureseed #830504P	50 lbs	Pound	\$3.07 /lb.	\$ 11,052.00
2	50 lbs.	Ideal Shade Mix	Pureseed #830145P	50 lbs	Pound	\$4.03 /lb.	\$ 201.50
3	1,100 lbs.	Overseeder II Mix	Pureseed #830281P	50 lbs	Pound	\$5.03 /lb.	\$ 5,533.00

**7. Proprietary Information**

NONE

**8. Exceptions**

NONE

**9. Additional Agreements**

NONE

**10. Other Information**

NONE



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/15/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Baldwin Krystyn Sherman Partners, LLC P.O. Box 807 Lakeland FL 33801	<b>CONTACT</b> NAME: Rebecca Oberpriller PHONE (A/C, No, Ext): 713-463-2120 FAX (A/C, No): E-MAIL ADDRESS: Rebecca.Oberpriller@bks-partners.com														
License#: L002281 HARRLLC-01	<table><tr><th>INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr><tr><td>INSURER A: National Union Fire Insurance</td><td>19445</td></tr><tr><td>INSURER B: Markel American Insurance Comp</td><td>28932</td></tr><tr><td>INSURER C: Ascot Specialty Insurance Co</td><td>45055</td></tr><tr><td>INSURER D: AIU Insurance Company</td><td>19399</td></tr><tr><td>INSURER E: New Hampshire Insurance Compan</td><td>23841</td></tr><tr><td>INSURER F: Gemini Insurance Company</td><td>10833</td></tr></table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: National Union Fire Insurance	19445	INSURER B: Markel American Insurance Comp	28932	INSURER C: Ascot Specialty Insurance Co	45055	INSURER D: AIU Insurance Company	19399	INSURER E: New Hampshire Insurance Compan	23841	INSURER F: Gemini Insurance Company	10833
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INSURER E: New Hampshire Insurance Compan	23841														
INSURER F: Gemini Insurance Company	10833														
<b>INSURED</b> Harrell's LLC, Harrell's, Inc. Harrell's Coatings Solutions, LLC P. O. Box 807 Lakeland FL 33802															

**COVERAGES****CERTIFICATE NUMBER:** 1910005714**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
C	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:			ENPL221000066302	3/1/2023	3/1/2024	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$500,000 MED EXP (Any one person) \$25,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 POLLUTION LIABILITY \$1,000,000
A	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY <input type="checkbox"/> PIP			CA4489811 (AOS) CA4489812 (MA)	3/1/2023 3/1/2023	3/1/2024 3/1/2024	COMBINED SINGLE LIMIT (Ea accident) \$2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ PIP \$10,000
C	<input type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0			ENXL221000066402	3/1/2023	3/1/2024	EACH OCCURRENCE \$15,000,000 AGGREGATE \$15,000,000 \$
E D	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/>	N/A	WC025893850 (AOS) WC025893851 (MA)	3/1/2023 3/1/2023	3/1/2024 3/1/2024	PER STATUTE OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
C B F	Pollution Liability Rented/Leased Equip. Professional Liability			ENPL221000066302 MKLM2IM0001532 VNPL012642	3/1/2023 3/1/2023 3/31/2023	3/1/2024 3/1/2024 3/31/2024	Occurrence \$1,000,000 Per Item/Occurrence \$500,000 Each Claim/Aggregate \$1,000,000

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

The General Liability and Auto Liability policies include blanket automatic additional insured, blanket automatic waiver of subrogation and blanket automatic primary, non-contributory wording endorsements that provides these features to the certificate holder only when there is a written contract between the named insured and the certificate holder that requires such status. The Workers' Compensation policy includes a blanket waiver automatic waiver of subrogation endorsement that provides this feature only when there is a written contract between the named insured and the certificate holder that requires it. Excess Liability is follow form.

Certificate holder includes: City of Rochester Hills, their affiliates and or assigns 30 Day Early Cancellation Notice applies.

**CERTIFICATE HOLDER****CANCELLATION**

City of Rochester Hills  
1000 Rochester Hills Drive  
Rochester Hills, MI 48309

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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ATTACHMENT A

**OMNIA PARTNERS**

Exhibit A – Response for National Cooperative Contract

Exhibit F – Federal Funds Certifications

Exhibit G – New Jersey Business Compliance

## **Exhibit A**

### **Response for National Cooperative Contract**

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## **2.0 REPRESENTATIONS AND COVENANTS**

### **2.1 Corporate Commitment**

Harrell's affirms that the Master Agreement has received all necessary corporate authorizations and support of executive management. The Master Agreement will be utilized as Harrell's primary strategy when approaching public agencies that are under the OMNIA partnership and would otherwise be required to go to bid. Harrell's will consider transitioning an existing Harrell's customer that is a Public Agency if that Agency requires a bid process and the Master Agreement is utilized. Harrell's has read and agrees to the terms and conditions of the Administration Agreement with OMNIA Partners and will execute such agreement concurrent with and as a condition of its execution of the Master Agreement with the Principal Procurement Agency. Greg Nicoll, SVP of Sales at Harrell's, will be the executive corporate sponsor responsible for overall management of the Master Agreement.

### **2.2 Pricing Commitment**

Harrell's affirms that pricing provided under the Master Agreement pricing is its lowest available to Public Agencies nationwide and further commits that if a Participating Public Agency is eligible for lower pricing through a national, state, regional or local or cooperative contract, the Supplier will match such lower pricing to that Participating Public Agency under the Master Agreement.

### **2.3 Sales Commitment**

Harrell's affirms that we will market the Master Agreement as laid out in [Attachment A\\_Omnia Partners](#), Exhibit A, Section 3.3, and that our sales team will be thoroughly trained and provided with the tools they need to approach and offer the Master Agreement to Public Agencies through OMNIA Partners nationwide. Harrell's commits that all Master Agreement sales will be accurately and timely reported to OMNIA Partners in accordance with the OMNIA Partners Administration Agreement. Harrell's also commits its sales force will be compensated, including sales incentives, for sales to Public Agencies under the Master Agreement in a consistent or better manner compared to sales to Public Agencies if the Supplier were not awarded the Master Agreement.

## **3.0 SUPPLIER RESPONSE**

### **3.1 Company**

A. Harrell's, LLC was established in Lakeland, Florida in 1941 and over the past 82 years has grown into a worldwide producer and distributor of customized, agronomic solutions. This includes nutritional solutions in both granular and liquid form to help your turf, landscape and plants grow and thrive. With 29 locations across the United States, Harrell's has built an infrastructure to ensure timely and efficient shipments to over 40 states coast to coast, and an international network that currently ships to 9 countries on 3 continents.

On December 20, 2007 Harrell's became incorporated in the State of Florida, and on September 30, 2016, Harrell's became an employee-owned company through the establishment of Harrell's Employee Stock Ownership Plan (ESOP). Harrell's currently has 390 employees.

Harrell's Coating Solutions: Makers of POLYON® fertilizer from Harrell's that has been America's premier controlled release fertilizer for turfgrass and ornamental applications since 1992.

Harrell's ProtectMAX®: Broad-spectrum line up of chemistry formulations including contact and systemic fungicides and herbicide.

Harrell's SprayMAX®: Complete line of adjuvants, colorants, and essential utility products.

Harrell's MAX®: Liquid foliar nutritionals that include over 30 different products with specific engineered formulations for turfgrass and ornamentals.

Harrell's is an Authorized Distributor for (but not limited to): ENVU (formally Bayer) Syngenta, Nufarm, BASF, Corteva (formally DOW Agrosience), FMC, PBI Gordon, SEPRO, PURE SEED, Mountain View Seed.

See sample of additional vendors in: [Attachment B\\_Letters of Authorization](#)

B. Harrell's has 119 Territory Managers who specialize in their agronomic field, and 5 Directors of Agronomy who conduct research, product trials, product development, and assist Territory Managers in creating customized solutions for customers to protect against pests, environmental threats, and climate extremes. Covering the United States from coast to coast, Harrell's Territory Managers live in these 30 states

Alabama	Indiana	New Hampshire	South Carolina
Arizona	Kansas	New Jersey	Tennessee
California	Kentucky	New York	Texas
Colorado	Massachusetts	Ohio	Virginia
Connecticut	Maryland	Oklahoma	Wisconsin
Florida	Michigan	Oregon	West Virginia
Georgia	Mississippi	Pennsylvania	
Illinois	North Carolina	Rhode Island	



C. Harrell's corporate office is located at 5105 New Tampa Hwy, Lakeland, Florida. Harrell's manufacturing and distribution facilities are strategically located across America. With 29 distribution facilities totaling over 550,000 sq ft of warehouse space spread across the country, Harrell's distribution network is designed to be able to reach our customer base swiftly and efficiently:

Atlanta, GA  
Avon Park, FL  
Birmingham, AL  
Boston, MA  
Charlotte, NC  
Chattanooga, TN  
Chicago, IL  
Dallas, TX  
Denver, CO  
Detroit, MI

Columbus, OH  
Hartford, CT  
Houston, TX  
Indianapolis, IN  
Lakeland, FL  
Los Angeles, CA  
Lubbock, TX  
Miami, FL  
Oklahoma City, OK  
Palm Springs, CA

Philadelphia, PA  
Phoenix, AZ  
Pittsburgh, PA  
Portland, OR  
Richmond, VA  
San Antonio, TX  
San Diego, CA  
San Jose, CA  
Syracuse, NY

D. Harrell's Gross Sales:

2020: \$303M

2021: \$397M

2022: \$444M

a. Submit FEIN and Dunn & Bradstreet report.

FEIN: 26-1595082

D&B: 805880072

E. Harrell's, LLC participates and contributes information for the Sustainability Report put out by The Fertilizer Institute. Please see Harrell's Sustainability Policy in [Attachment F\\_Sustainability Policy](#). Harrell's also actively promotes BMPs for responsible pesticide use and Harrell's is a Platinum Tee Club member of the Environmental Institute for Golf, which supports and advocates for sustainable practices in the green industry.

Harrell's patented POLYON® fertilizers do not leach or volatilize into the atmosphere. The controlled release technology is engineered to release a specific amount of nutrients for plant uptake. This eliminates unnecessary leaching into waterways.

F. Harrell's offers annual Diversity, Equity, and Inclusion training for all employees.

G. Indicate if supplier holds any of the below certifications in any classified areas and include proof of such certification in the response:

a. Minority Women Business Enterprise

☐ Yes ☒ No

If yes, list certifying agency: \_\_\_\_\_

b. Small Business Enterprise (SBE) or Disadvantaged Business Enterprise (DBE)

☐ Yes ☒ No

If yes, list certifying agency: \_\_\_\_\_

c. Historically Underutilized Business (HUB)

☐ Yes ☒ No

If yes, list certifying agency: \_\_\_\_\_

d. Historically Underutilized Business Zone Enterprise (HUBZone)

☐ Yes ☒ No

If yes, list certifying agency: \_\_\_\_\_

e. Other recognized diversity certificate holder

☐ Yes ☒ No

If yes, list certifying agency: \_\_\_\_\_

H. Harrell's will not be utilizing any subcontractors for the fulfillment of this contract.

I. Harrell's is not simply a distributor for products. Harrell's offers a team to assist our customers with solutions by assisting with agronomic planning to create a balanced approach for a healthy lawn and landscape. In addition to great customer service and delivery, Harrell's offers a series of tools through MyHarrell's web portal that include quick links to labels, SDS, and calculators to assist any applicator with product requirements. In addition, OMNIA Partners Agencies have the added option of training, education (including online CEU courses) and technical support from the support staff at Harrell's that include but are not limited to 5 Ph.D.'s who serve as Directors of Agronomy.

J. Harrell's, LLC currently has two open cases - one case was originated by Harrell's for non-payment by a former customer; the other case involves a grower who allegedly sustained some crop damage and the customer is in the process of determining which inputs could have caused the damage. The only product this customer purchased from Harrell's was soil.

K. Harrell's is not owned or operated by anyone who has been convicted of a felony.

L. None.

### **3.2 Distribution, Logistics**

A. Harrell's, LLC has a comprehensive product and service offering including granular and liquid fertilizers, plant protectants including but not limited to herbicides, fungicides, insecticides, grass seeds and a balance of lines including materials and supplies. In addition to these products, Harrell's also

provides free training with CEU credits, bulk spreading in certain states, free delivery, free agronomic support from our agronomy experts, and a user friendly customer web portal located at [www.myHarrells.com](http://www.myHarrells.com).

Harrell's Coating Solutions: Makers of POLYON® fertilizer from Harrell's that has been America's premier controlled release fertilizer for turfgrass and ornamental applications since 1992.

Harrell's ProtectMAX®: Broad-spectrum line up of chemistry formulations including contact and systemic fungicides and herbicide.

Harrell's SprayMAX®: Complete line of adjuvants, colorants, and essential utility products.

Harrell's MAX®: Liquid foliar nutritionals that include over 30 different products with specific engineered formulations for turfgrass and ornamentals.

Harrell's is an Authorized Distributor for (but not limited to): ENVU (formally Bayer) Syngenta, Nufarm, BASF, Corteva (formally DOW Agrosience), FMC, PBI Gordon, SEPRO, PURE SEED, Mountain View Seed.

See sample of additional vendors in: [Attachment B\\_Letters of Authorization](#).

B. Harrell's manufacturing and distribution facilities are strategically located across America. With 29 distribution facilities totaling over 550,000 sq ft of warehouse space spread across the country, Harrell's distribution network is designed to be able to reach our customer base swiftly and efficiently. Harrell's is continually expanding and opening new distribution locations as our customer base grows.

C. All participating agencies will receive Best in Market pricing. A national price list will accommodate the Master Agreement to be posted on OMNIA Website. Pricing will be monitored monthly and adjusted, when necessary, with the approval from the City of Rochester Hills, MI. Adjustments may include but are not limited to price increases or reductions and the addition of products and services.

D. Harrell's fleet primarily handles and deliver's all products. When needed, Harrell's utilizes third party shipping including, but not limited to, Fed Ex and UPS.

E. Harrell's manufacturing and distribution facilities are strategically located across America. With 29 distribution facilities totaling over 550,000 sq ft of warehouse space spread across the country, Harrell's distribution network is designed to be able to reach our customer base swiftly and efficiently. No retail network is utilized in distribution, all sales are handled by one of Harrell's 119 Territory Managers.

### **3.3 Marketing and Sales**

A. Harrell's will immediately implement a 90-day strategy designed to endorse the award and educate our national sales force.

Within the first 10 days, Harrell's executive leadership will communicate endorsement and sponsorship of the award as the public sector go-to-market strategy to our national sales force.

Within the first 90 days, Harrell's will provide training materials (created by Harrell's and/or supplied by the OMNIA Partners team) regarding participation to our national sales force.

B. Harrell's ninety-day Marketing plan:

i. Harrell's will create and distribute a co-branded press release to trade publications.

ii. Harrell's will publish the Master Agreement details and contact information on a newly created page at [www.harrells.com](http://www.harrells.com) within the first 90 days.

iii. Harrell's will distribute co-branded marketing materials, including an updated version of our existing OMNIA Brochure, within the first 90 days.

iv. Harrell's will commit to attendance and participation with OMNIA Partners and national, regional, and supplier-specific trade shows, conferences, and meetings throughout the term of the Master Agreement.

v. Harrell's will commit to attend, exhibit and participate at the NIGP Annual Forum in an area reserved by OMNIA Partners for partner suppliers. Booth space will be purchased and staffed by Harrell's. Harrell's will commit to providing reasonable assistance to the overall promotion and marketing efforts for the NIGP Annual Forum, as directed by OMNIA Partners.

vi. Harrell's will submit advertisements in national and regional trade publications throughout the term of the Master Agreement.

vii. Harrell's will engage in ongoing marketing and promotion of the Master Agreement throughout its term in the form of collateral, presentations, social media posts, newsletter entries, and more.

viii. Harrell's will provide a dedicated landing page on [www.harrells.com](http://www.harrells.com) with the OMNIA Partners standard logo, a copy of the original Request for Proposal, a copy of the Master Agreement and amendments between Principal Procurement Agency and Harrell's, a summary of products and pricing, marketing materials, a link to the OMNIA Partners website and online registration page, and a dedicated toll-free number and email address for OMNIA Partners.

C. Harrell's will consider transitioning an existing Harrell's customer that is a Public Agency if that Agency requires a bid process and the Master Agreement is utilized.

D. Harrell's agrees to provide our logo to OMNIA Partners and agrees to provide permission for reproduction of such logo in marketing communications and promotions. We acknowledge that use of OMNIA Partners logo will require permission for reproduction, as well.

E. Harrell's confirms we will be proactive in direct sales of Supplier's goods and services to Public Agencies nationwide and the timely follow up to leads established by OMNIA Partners.

F. Harrell's will train its national sales force on the Master Agreement.

G. Harrell's Contacts:

i. Executive Support - Greg Nicoll, VP of Sales

[gnicoll@harrells.com](mailto:gnicoll@harrells.com)

(508) 832-5008

ii. Marketing - Samantha Bamaca, Director of Marketing

[sbamaca@harrells.com](mailto:sbamaca@harrells.com)

(863) 687-2774

iii. Sales - Greg Nicoll, VP of Sales

[gnicoll@harrells.com](mailto:gnicoll@harrells.com)

(508) 832-5008

iv. Sales Support - Greg Nicoll, VP of Sales

[gnicoll@harrells.com](mailto:gnicoll@harrells.com)

(508) 832-5008

v. Financial Reporting - Kevin English, VP of Finance

[kenglish@harrells.com](mailto:kenglish@harrells.com)

(863) 687-2774

vi. Accounts Payable - Candace Rueda, AP Manager

[candace@harrells.com](mailto:candace@harrells.com)

(863) 687-2774

vii. Contracts - Mary Eisner, Executive Assistant

[meisner@harrells.com](mailto:meisner@harrells.com)

(863) 687-2774

H. Harrell's Sales force is structured by segment and then by geography. There are 4 main segments: Turf (includes golf, sports turf and landscape), Horticulture, Specialty Agriculture and International. These segments are managed by geographical regions. Vice President's report to Dave Schermerhorn (President), Sales Directors report to Vice President's, and Territory Managers report to Sales Directors. Territory Managers specialize in their agronomic field and create customized solutions for customers to achieve healthy and beautiful turf, plants, and crops, as well as protect against pests, environmental threats, and climate extremes. Below are the top three levels of our Sales Force:

David Schermerhorn, President - david@harrells.com

Greg Nicoll, VP of Turf Sales, North - gnicoll@harrells.com  
John Keeler, Sales Director, Northeast - jkeeler@harrells.com  
Tyler Otero, Sales Director, Mid-Atlantic - totero@harrells.com  
Scott Parker, Sales Director, Midwest - sparker@harrells.com

Nick Spardy, VP of Turf Sales West and South Central - nspardy@harrells.com  
Phil Page, Sales Director, Turf West - ppage@harrells.com  
J.J. Jansen, Sales Director, Turf South Central - jjjansen@harrells.com

Clay Breazeale, VP of Turf Sales, South - cbreazeale@harrells.com  
Adam Ellison, Sales Director, Florida - aellison@harrells.com  
Kurt von Hofen, Sales Director, Southeast - kvonhofen@harrells.com  
Matt Greg, Sales Director, Coastal Plains - mgregg@harrells.com

Rick Helpingstine, VP of International Sales, Specialty Ag - rhelpingstine@harrells.com  
Vikki Yeh, Director of International Sales - vyeh@harrells.com

Scott Martiniere, VP of Horticulture Sales - smartiniere@harrells.com  
Norman Lafaille, Sales Director, Hort North - nlafaille@harrells.com  
Robby Clemenzi, Sales Director, Hort South - rclemenzi@harrells.com  
Marlon Carrera, Sales Director, Hort West - mcarrera@harrells.com

I. Harrell's Sales team members work in conjunction with their Regional Sales Directors and seek assistance, if necessary, from OMNIA Regional Representatives to introduce the value of the Master Agreement.

I. Harrell's anticipates future growth as a company with primary focus on the public sector. Harrell's will investigate potential opportunities, develop trust and share the benefits of the Master Agreement.

J. Harrell's Public Agency sales for the 2022: \$2,207,596 (increased by 10%)

Harrell's top 10 Public Agency customers (total purchases for 2022):

1. Collier County Board of County, Jeff Bell	\$ 292,236.10
2. Collier County School Board, Sumeet Perez	\$ 213,505.28
3. University of Florida, Paul Hamilton	\$ 205,602.49
4. Manatee County Finance, David Schumer	\$ 190,604.30
5. Huron Clinton Metro Auth, Chris Lengman	\$ 190,438.76
6. Florida Int'l University, Dave Provost	\$ 111,338.18
7. Town of Colonie, John Risler	\$ 96,254.92
8. City of Farmington Hills, April Heir	\$ 89,266.83
9. OSU Golf Club, Dennis Bowsher	\$ 84,093.18
10. City of Lavonia Golf, Douglas Ware	\$ 76,302.45

K. Invoices are posted and sent to customers the day after the product is shipped. Invoices are created based on the items received on the original order. Options for receiving invoices are US Postal Service, Email, or Fax. Invoices can also be viewed online in our Customer Portal. Electronic and summary invoicing are not currently available. Method of payments are US Postal Service (Harrell's, LLC, P O Box 935358, Atlanta GA 31193-5358), electronic check (ACH), or credit card via phone or customer portal. Sample invoice provided in: [Attachment D\\_Sample Invoice](#).

L. Harrell's is unable to guarantee a sales amount for each year of the contract. However, Harrell's is committed to utilizing and growing this contract should we be awarded an additional three years, as our history utilizing this contract demonstrates. From 2021 to 2022 Harrell's increased the contract by 10%. From 2022 to 2023 Harrell's has increased the contract by 28% YTD (comparing sales number on 9/6/22 and 9/6/23). See details below:

Year 1 - 2021: \$2,010,059  
Year 2 - 2022: \$2,207,596 (increased by 10%)  
Year 3 (in progress) - 9/6/23: \$1,462,759 (increased 28% YTD)

M. When the opportunity presents itself, as described in these examples, Harrell's Team Members will introduce OMNIA Partners, explain the benefits of the Master Agreement and will work closely with the Agency to ensure that they received Best in Market pricing.

In addition, Harrell's team members will use the OMNIA Partners Connect Portal to seek contacts within a Public Agency to assist with generating confidence from a future prospect within that Agency. There are many circumstances when Public Agencies are not communicating internally about the benefits of OMNIA. OMNIA Partners Connect assists in making those connections.

**Exhibit F**  
**Federal Funds Certifications**

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**FEDERAL CERTIFICATIONS**  
**ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANT**

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**TO WHOM IT MAY CONCERN:**

**Participating Agencies may elect to use federal funds to purchase under the Master Agreement. This form should be completed and returned.**

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**DEFINITIONS**

**Contract** means a legal instrument by which a non-Federal entity purchases property or services needed to carry out the project or program under a Federal award. The term as used in this part does not include a legal instrument, even if the non-Federal entity considers it a contract, when the substance of the transaction meets the definition of a Federal award or subaward

**Contractor** means an entity that receives a contract as defined in Contract.

**Cooperative agreement** means a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a non-Federal entity that, consistent with 31 U.S.C. 6302–6305:

- (a) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from the Federal awarding agency or pass-through entity to the non-Federal entity to carry out a public purpose authorized by a law of the United States (see 31 U.S.C. 6101(3)); and not to acquire property or services for the Federal government or pass-through entity's direct benefit or use;
- (b) Is distinguished from a grant in that it provides for substantial involvement between the Federal awarding agency or pass-through entity and the non-Federal entity in carrying out the activity contemplated by the Federal award.
- (c) The term does not include:
  - (1) A cooperative research and development agreement as defined in 15 U.S.C. 3710a; or
  - (2) An agreement that provides only:
    - (i) Direct United States Government cash assistance to an individual;
    - (ii) A subsidy;
    - (iii) A loan;
    - (iv) A loan guarantee; or
    - (v) Insurance.

**Federal awarding agency** means the Federal agency that provides a Federal award directly to a non-Federal entity

**Federal award** has the meaning, depending on the context, in either paragraph (a) or (b) of this section:

- (a)(1) The Federal financial assistance that a non-Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability; or
- (2) The cost-reimbursement contract under the Federal Acquisition Regulations that a non-Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability.
- (b) The instrument setting forth the terms and conditions. The instrument is the grant agreement, cooperative agreement, other agreement for assistance covered in paragraph (b) of § 200.40 Federal financial assistance, or the cost-reimbursement contract awarded under the Federal Acquisition Regulations.
- (c) Federal award does not include other contracts that a Federal agency uses to buy goods or services from a contractor or a contract to operate Federal government owned, contractor operated facilities (GOCOs).
- (d) See also definitions of Federal financial assistance, grant agreement, and cooperative agreement.



**Non-Federal entity** means a state, local government, Indian tribe, institution of higher education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient.

**Nonprofit organization** means any corporation, trust, association, cooperative, or other organization, not including IHEs, that:

- (a) Is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;
- (b) Is not organized primarily for profit; and
- (c) Uses net proceeds to maintain, improve, or expand the operations of the organization.

**Obligations** means, when used in connection with a non-Federal entity's utilization of funds under a Federal award, orders placed for property and services, contracts and subawards made, and similar transactions during a given period that require payment by the non-Federal entity during the same or a future period.

**Pass-through entity** means a non-Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program.

**Recipient** means a non-Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient does not include subrecipients.

**Simplified acquisition threshold** means the dollar amount below which a non-Federal entity may purchase property or services using small purchase methods. Non-Federal entities adopt small purchase procedures in order to expedite the purchase of items costing less than the simplified acquisition threshold. The simplified acquisition threshold is set by the Federal Acquisition Regulation at 48 CFR Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908. As of the publication of this part, the simplified acquisition threshold is \$250,000, but this threshold is periodically adjusted for inflation. (Also see definition of § 200.67 Micro-purchase.)

**Subaward** means an award provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a Federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a Federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract.

**Subrecipient** means a non-Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.

**Termination** means the ending of a Federal award, in whole or in part at any time prior to the planned end of period of performance.

The following provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Per FAR 52.204-24 and FAR 52.204-25, solicitations and resultant contracts shall contain the following provisions.

#### **52.204-24 Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment (Oct 2020)**

The Offeror shall not complete the representation at paragraph (d)(1) of this provision if the Offeror has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in paragraph (c)(1) in the provision at [52.204-26](#), Covered Telecommunications Equipment or Services—Representation, or in paragraph (v)(2)(i) of the provision at [52.212-3](#), Offeror Representations and Certifications-Commercial Items. The Offeror shall not complete the representation in paragraph (d)(2) of this provision if the Offeror has represented that it "does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services" in paragraph (c)(2) of the provision at [52.204-26](#), or in paragraph (v)(2)(ii) of the provision at [52.212-3](#).

(a) *Definitions.* As used in this provision—

*Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component* have the meanings provided in the clause [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

*(b) Prohibition.*

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) *Procedures.* The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

*(d) Representation.* The Offeror represents that—

(1) It ☐ will, ☐ will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Offeror responds "will" in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the Offeror represents that—

It ☐ does, ☐ does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Offeror responds "does" in paragraph (d)(2) of this section.

*(e) Disclosures.*

(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Offeror has responded "will" in the representation in paragraph (d)(1) of this provision, the Offeror shall provide the following information as part of the offer.

*(i) For covered equipment—*

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

*(ii) For covered services—*

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Offeror has responded "does" in the representation in paragraph (d)(2) of this provision, the Offeror shall provide the following information as part of the offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

#### **52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020).**

(a) *Definitions.* As used in this clause—

*Backhaul* means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

*Covered foreign country* means The People's Republic of China.

*Covered telecommunications equipment or services* means—

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

*Critical technology* means—

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled—

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

*Interconnection arrangements* means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

*Reasonable inquiry* means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

*Roaming* means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

*Substantial or essential component* means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) *Prohibition.*

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR [4.2104](#).

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR [4.2104](#). This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements;  
or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) *Reporting requirement.*

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts*. The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

The following certifications and provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, including small purchases, awarded by the Participating Agency and the Participating Agency's subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

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#### APPENDIX II TO 2 CFR PART 200

**(A) Contracts for more than the simplified acquisition threshold currently set at \$250,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.**

Pursuant to Federal Rule (A) above, when a Participating Agency expends federal funds, the Participating Agency reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does offeror agree? YES ek Initials of Authorized Representative of offeror

**(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000)**

Pursuant to Federal Rule (B) above, when a Participating Agency expends federal funds, the Participating Agency reserves the right to immediately terminate any agreement in excess of \$10,000 resulting from this procurement process in the event of a breach or default of the agreement by Offeror as detailed in the terms of the contract.

Does offeror agree? YES ek Initials of Authorized Representative of offeror

**(C) Equal Employment Opportunity.** Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Pursuant to Federal Rule (C) above, when a Participating Agency expends federal funds on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does offeror agree to abide by the above? YES ek Initials of Authorized Representative of offeror

**(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148).** When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work



Pursuant to Federal Rule (D) above, when a Participating Agency expends federal funds during the term of an award for all contracts and subgrants for construction or repair, offeror will be in compliance with all applicable Davis-Bacon Act provisions.

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Pursuant to Federal Rule (E) above, when a Participating Agency expends federal funds, offeror certifies that offeror will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by Participating Agency resulting from this procurement process.



Pursuant to Federal Rule (F) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.



In the event Federal Transit Administration (FTA) or Department of Transportation (DOT) funding is used by Participating Public Agency, Offeror also agrees to include Clean Air and Clean Water requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.



**(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the Executive Office of the President Office of Management and Budget (OMB) guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.**

Pursuant to Federal Rule (H) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency. If at any time during the term of an award the offeror or its principals becomes debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency, the offeror will notify the Participating Agency.

Does offeror agree? YES  Initials of Authorized Representative of offeror

**(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.**

Pursuant to Federal Rule (I) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term and after the awarded term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(3) The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

Does offeror agree? YES  Initials of Authorized Representative of offeror

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**RECORD RETENTION REQUIREMENTS FOR CONTRACTS INVOLVING FEDERAL FUNDS**

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When federal funds are expended by Participating Agency for any contract resulting from this procurement process, offeror certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The offeror further certifies that offeror will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does offeror agree? YES                     *ell*                     Initials of Authorized Representative of offeror

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**CERTIFICATION OF COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT**

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When Participating Agency expends federal funds for any contract resulting from this procurement process, offeror certifies that it will comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.; 49 C.F.R. Part 18).

Does offeror agree? YES                     *ell*                     Initials of Authorized Representative of offeror

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**CERTIFICATION OF COMPLIANCE WITH BUY AMERICA PROVISIONS**

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To the extent purchases are made with Federal Highway Administration, Federal Railroad Administration, or Federal Transit Administration funds, offeror certifies that its products comply with all applicable provisions of the Buy America Act and agrees to provide such certification or applicable waiver with respect to specific products to any Participating Agency upon request. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition. Additionally:

- (1) The Contractor agrees to comply with 49 USC 5323(j) and 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7.A general public interest waiver from the Buy America requirements applies to microprocessors, computers, microcomputers, software or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a microprocessor or microcomputer and is not used solely for the purpose of processing or storing data. Separate requirements for rolling stock are set out at 5323(j)(2)(C) and 49 CFR 661.11.
- (2) A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

The following certificates titled FTA and DOT Buy America Certification should be completed and returned with the response as part of FTA and DOT requirements.

**FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) -  
BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENT OF ROLLING STOCK**

**CERTIFICATE OF COMPLIANCE**

(select one of the two options, NOT BOTH)

**Certificate of Compliance with 49 USC §5323(j)**

The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j), and the applicable regulations of 49 CFR 661.11.

Check for YES: ☒

OR

**Certificate of Non-Compliance with 49 USC §5323(j)**

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The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but may qualify for an exception to the requirement consistent with 49 U.S.C. 5323(j)(2)(C), and the applicable regulations in 49 CFR 661.7.  
Check for YES: ☐

**FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) -  
BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENT OF STEEL OR MANUFACTURED PRODUCTS**

**CERTIFICATE OF COMPLIANCE** (select one of the two options, NOT BOTH)

**Certificate of Compliance with 49 USC §5323(j)(1)**

The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), and the applicable regulations in 49 CFR part 661.

Check for YES: ☒

OR

**Certificate of Non-Compliance with 49 USC §5323(j)(1)**

The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR 661.7.

Check for YES: ☐

Does offeror agree? YES ek Initials of Authorized Representative of offeror

Offeror's Name: Harrell's, LLC  
Address, City, State, and Zip Code: 5105 New Tampa Hwy, Lakeland, FL 33815  
Phone Number: 863/687-2774  
Fax Number: \_\_\_\_\_

Printed Name and Title of Authorized Representative: Ella Kimbrel, SVP/HR  
Email Address: Bids@Harrells.com  
Signature of Authorized Representative: Ella Kimbrel  
Date: 9-13-2023

**CERTIFICATION OF ACCESS TO RECORDS – 2 C.F.R. § 200.336**

Offeror agrees that the Inspector General of the Agency or any of their duly authorized representatives shall have access to any documents, papers, or other records of offeror that are pertinent to offeror's discharge of its obligations under the Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to offeror's personnel for the purpose of interview and discussion relating to such documents.

Does offeror agree? YES ek Initials of Authorized Representative of offeror

**CERTIFICATION OF APPLICABILITY TO SUBCONTRACTORS**

Offeror agrees that all contracts it awards pursuant to the Contract shall be bound by the foregoing terms and conditions.

Does offeror agree? YES ek Initials of Authorized Representative of offeror

**COMMUNITY DEVELOPMENT BLOCK GRANTS**

Purchases made under this contract may be partially or fully funded with federal grant funds. Funding for this work may include Federal Funding sources, including Community Development Block Grant (CDBG) funds from the U.S. Department of Housing and Urban Development. When such funding is provided, Offeror shall comply with all terms, conditions and requirements

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enumerated by the grant funding source, as well as requirements of the State statutes for which the contract is utilized, whichever is the more restrictive requirement. When using Federal Funding, Offeror shall comply with all wage and latest reporting provisions of the Federal Davis-Bacon Act. HUD-4010 Labor Provisions also applies to this contract.

Does offeror agree? YES ER Initials of Authorized Representative of offeror

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Offeror agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that offeror certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Offeror's Name:

Harrell's, LLC

Address, City, State, and Zip Code:

5105 New Tampa Hwy, Lakeland, FL 33815

Phone Number:

863/ 687-2774

Fax Number:

Printed Name and Title of Authorized Representative:

Ella Kimbrel, SVP/HR

Email Address:

Bids@Harrells.com

Signature of Authorized Representative:

Ella Kimbrel

Date:

9-13-2023

## **FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS**

Awarded Supplier(s) (also referred to as Contractors) may need to respond to events and losses where products and services are needed for the immediate and initial response to emergency situations such as, but not limited to, water damage, fire damage, vandalism cleanup, biohazard cleanup, sewage decontamination, deodorization, and/or wind damage during a disaster or emergency situation. By submitting a proposal, the Supplier is accepted these FEMA and Additional Federal Funding Special Conditions required by the Federal Emergency Management Agency (FEMA) and other federal entities.

“Contract” in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as the “Master Agreement”.

“Contractor” in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as “Supplier” or “Awarded Supplier”.

### **Conflicts of Interest**

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a FEMA award if he or she has a real or apparent conflict of interest. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties, has a financial or other interest in or a tangible personal benefit from a firm considered for award. 2 C.F.R. § 200.318(c)(1); See also Standard Form 424D, ¶ 7; Standard Form 424B, ¶ 3. i. FEMA considers a “financial interest” to be the potential for gain or loss to the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties as a result of the particular procurement. The prohibited financial interest may arise from ownership of certain financial instruments or investments such as stock, bonds, or real estate, or from a salary, indebtedness, job offer, or similar interest that might be affected by the particular procurement. ii. FEMA considers an “apparent” conflict of interest to exist where an actual conflict does not exist, but where a reasonable person with knowledge of the relevant facts would question the impartiality of the employee, officer, or agent participating in the procurement. c. Gifts. The officers, employees, and agents of the Participating Public Agency nor the Participating Public Agency (“NFE”) must neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, NFE’s may set standards for situations in which the financial interest is de minimus, not substantial, or the gift is an unsolicited item of nominal value. 2 C.F.R. § 200.318(c)(1). d. Violations. The NFE’s written standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the NFE. 2 C.F.R. § 200.318(c)(1). For example, the penalty for a NFE’s employee may be dismissal, and the penalty for a contractor might be the termination of the contract.

### **Contractor Integrity**

A contractor must have a satisfactory record of integrity and business ethics. Contractors that are debarred or suspended, as described in and subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security’s regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension), must be rejected and cannot receive contract awards at any level.

### **Notice of Legal Matters Affecting the Federal Government**

In the event FTA or DOT funding is used by Participating Public Agency, Contractor agrees to:

- 1) The Contractor agrees that if a current or prospective legal matter that may affect the Federal Government emerges, the Contractor shall promptly notify the Participating Public Agency of the legal matter in accordance with 2 C.F.R. §§ 180.220 and 1200.220.

- 2) The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason.
- 3) The Contractor further agrees to include the above clause in each subcontract, at every tier, financed in whole or in part with Federal assistance provided by the FTA.

### **Public Policy**

A contractor must comply with the public policies of the Federal Government and state, local government, or tribal government. This includes, among other things, past and current compliance with the:

- a. Equal opportunity and nondiscrimination laws
- b. Five affirmative steps described at 2 C.F.R. § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance; and FEMA Procurement Guidance June 21, 2016 Page IV- 7
- c. Applicable prevailing wage laws, regulations, and executive orders

### **Affirmative Steps**

For any subcontracting opportunities, Contractor must take the following Affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

### **Prevailing Wage Requirements**

When applicable, the awarded Contractor (s) and any and all subcontractor(s) agree to comply with all laws regarding prevailing wage rates including the Davis-Bacon Act, applicable to this solicitation and/or Participating Public Agencies. The Participating Public Agency shall notify the Contractor of the applicable pricing/prevailing wage rates and must apply any local wage rates requested. The Contractor and any subcontractor(s) shall comply with the prevailing wage rates set by the Participating Public Agency.

### **Federal Requirements**

If products and services are issued in response to an emergency or disaster recovery the items below, located in this FEMA Special Conditions section of the Federal Funds Certifications, are activated and required when federal funding may be utilized.

### **2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses**

#### **1. CONTRACT REMEDIES**

Contracts for more than the federal simplified acquisition threshold (SAT), the dollar amount below which an NFE may purchase property or services using small purchase methods, currently set at \$250,000 for procurements made on or after June 20, 2018,<sup>4</sup> must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms and must provide for sanctions and penalties as appropriate.

### 1.1 Applicability

This contract provision is required for contracts over the SAT, currently set at \$250,000 for procurements made on or after June 20, 2018. Although not required for contracts at or below the SAT, FEMA suggests including a remedies provision.

### 1.2 Additional Considerations

For FEMA's Assistance to Firefighters Grant (AFG) Program, recipients must include a penalty clause in all contracts for any AFG-funded vehicle, regardless of dollar amount. In that situation, the contract must include a clause addressing that non-delivery by the contract's specified date or other vendor nonperformance will require a penalty of no less than \$100 per day until such time that the vehicle, compliant with the terms of the contract, has been accepted by the recipient. This penalty clause should, however, account for force majeure or acts of God. AFG recipients should refer to the applicable year's Notice of Funding Opportunity (NOFO) for additional information, which can be accessed at FEMA.gov.

## 2. TERMINATION FOR CAUSE AND CONVENIENCE

- a. Standard. All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity, including the manner by which it will be effected and the basis for settlement. See 2 C.F.R. Part 200, Appendix II(B).
- b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

## 3. EQUAL EMPLOYMENT OPPORTUNITY

When applicable:

- a. Standard. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. § 60- 1.4(b), in accordance with Executive Order 11246, *Equal Employment Opportunity* (30 Fed. Reg. 12319, 12935, 3 C.F.R. Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, *Amending Executive Order 11246 Relating to Equal Employment Opportunity*, and implementing regulations at 41 C.F.R. Part 60 (Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor). See 2 C.F.R. Part 200, Appendix II(C).
- b. Key Definitions.
  - i. Federally Assisted Construction Contract. The regulation at 41 C.F.R. § 60-1.3 defines a "federally assisted construction contract" as any agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the Government for a grant, contract,

loan, insurance, or guarantee under which the applicant itself participates in the construction work.

- ii. Construction Work. The regulation at 41 C.F.R. § 60-1.3 defines “construction work” as the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.
- c. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.
- d. Required Language. The regulation at 41 C.F.R. Part 60-1.4(b) requires the insertion of the following contract clause.

During the performance of this contract, the contractor agrees as follows:

**(1)** The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

**(2)** The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

**(3)** The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

**(4)** The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

**(5)** The contractor will comply with all provisions of Executive Order 11246 of September

24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

**(6)** The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

**(7)** In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

**(8)** The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or

suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

#### **4. DAVIS-BACON ACT**

- a. Standard. All prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction). See 2 C.F.R. Part 200, Appendix II(D). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.
- b. Applicability. The Davis-Bacon Act applies to the Emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program.
- c. Requirements. If applicable, the non-federal entity must do the following:
  - i. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.
  - ii. Additionally, pursuant 2 C.F.R. Part 200, Appendix II(D), contracts subject to the Davis-Bacon Act, must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti-Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.
  - iii. Include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”).

Suggested Language. The following provides a sample contract clause:

Compliance with the Davis-Bacon Act.

- a. All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and



3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

- b. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.
- c. Additionally, contractors are required to pay wages not less than once a week.

## 5. COPELAND ANTI-KICKBACK ACT

- a. Standard. Recipient and subrecipient contracts must include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”).
- b. Applicability. This requirement applies to all contracts for construction or repair work above \$2,000 in situations where the Davis-Bacon Act also applies. It DOES NOT apply to the FEMA Public Assistance Program.
- c. Requirements. If applicable, the non-federal entity must include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). Each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA. Additionally, in accordance with the regulation, each contractor and subcontractor must furnish each week a statement with respect to the wages paid each of its employees engaged in work covered by the Copeland Anti-Kickback Act and the Davis Bacon Act during the preceding weekly payroll period. The report shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work.

Sample Language. The following provides a sample contract clause:

### Compliance with the Copeland “Anti-Kickback” Act.

- a. Contractor. The contractor shall comply with 18 U.S.C. §874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
- b. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

- c. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. §5.12.”

## 6. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

- a. Standard. Where applicable (see 40 U.S.C. §§ 3701-3708), all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II(E). Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Further, no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.
- b. Applicability. This requirement applies to all FEMA contracts awarded by the non- federal entity in excess of \$100,000 under grant and cooperative agreement programs that involve the employment of mechanics or laborers. It is applicable to construction work. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
- c. Suggested Language. The regulation at 29 C.F.R. § 5.5(b) provides contract clause language concerning compliance with the Contract Work Hours and Safety Standards Act. FEMA suggests including the following contract clause:

### Compliance with the Contract Work Hours and Safety Standards Act.

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of

\$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The Federal agency or

loan/grant recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts*. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

## **7. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT**

- a.** Standard. If the FEMA award meets the definition of “funding agreement” under 37 C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the non-Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA. See 2 C.F.R. Part 200, Appendix II(F).
- b.** Applicability. This requirement applies to “*funding agreements*,” but it DOES NOT apply to the Public Assistance, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of “funding agreement.”
- c.** Funding Agreements Definition. The regulation at 37 C.F.R. § 401.2(a) defines “funding agreement” as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

## **8. CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT**

- a.** Standard. If applicable, contracts must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q.) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II(G).

- b. Applicability. This requirement applies to contracts awarded by a non-federal entity of amounts in excess of \$150,000 under a federal grant.
- c. Suggested Language. The following provides a sample contract clause.

#### Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

#### Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

### **9. DEBARMENT AND SUSPENSION**

- a. Standard. Non-Federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension).
- b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.
- c. Requirements.

- i. These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II(H); and 2 C.F.R. § 200.213. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at [www.sam.gov](http://www.sam.gov). See 2 C.F.R. § 180.530.
- ii. In general, an “excluded” party cannot receive a Federal grant award or a contract within the meaning of a “covered transaction,” to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a “covered transaction,” which is any non-procurement transaction (unless excepted) at either a “primary” or “secondary” tier. Although “covered transactions” do not include contracts awarded by the Federal Government for purposes of the non-procurement common rule and DHS’s implementing regulations, it does include some contracts awarded by recipients and subrecipients.
- iii. Specifically, a covered transaction includes the following contracts for goods or services:
  - 1. The contract is awarded by a recipient or subrecipient in the amount of at least \$25,000.
  - 2. The contract requires the approval of FEMA, regardless of amount.
  - 3. The contract is for federally-required audit services.
  - 4. A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of \$25,000.
- d. Suggested Language. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified.

#### Suspension and Debarment

- (1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor’s principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- (2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- (3) This certification is a material representation of fact relied upon by the Participating

Public Agency. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the Participating Public Agency, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

- (4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

## 10. BYRD ANTI-LOBBYING AMENDMENT

- a. Standard. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. FEMA's regulation at 44 C.F.R. Part 18 implements the requirements of 31 U.S.C. § 1352 and provides, in Appendix A to Part 18, a copy of the certification that is required to be completed by each entity as described in 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Federal awarding agency.
- b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs. Contractors that apply or bid for a contract of \$100,000 or more under a federal grant must file the required certification. See 2 C.F.R. Part 200, Appendix II(I); 31 U.S.C. § 1352; and 44 C.F.R. Part 18.
- c. Suggested Language.

### Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of \$100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

- d. Required Certification. If applicable, contractors must sign and submit to the non-federal entity the following certification.

### APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, Harrell's, LLC, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Ella Kimbrel

Signature of Contractor's Authorized Official

Ella Kimbrel, SVP/HR

Name and Title of Contractor's Authorized Official

9-13-2023

Date

## 11. PROCUREMENT OF RECOVERED MATERIALS

- a. Standard. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. See 2 C.F.R. Part 200, Appendix II(J); and 2 C.F.R. §200.322.
- b. Applicability. This requirement applies to all contracts awarded by a non- federal entity under FEMA grant and cooperative agreement programs.
- c. Requirements. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
- d. Suggested Language.
  - i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—
    1. Competitively within a timeframe providing for compliance with the contract performance schedule;
    2. Meeting contract performance requirements; or
    3. At a reasonable price.
  - ii. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
  - iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.”

## 12. DOMESTIC PREFERENCES FOR PROCUREMENTS

As appropriate, and to the extent consistent with law, CONTRACTOR should, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products or materials produced in the United States. This includes, but is not limited to, iron, aluminum, steel, cement, and other manufactured products.

Applicability For purchases in support of FEMA declarations and awards issued on or after November 12, 2020, all FEMA recipients and subrecipients are required to include in all contracts and purchase orders for work or products a contract provision encouraging domestic preference for procurements.

Domestic Preference for Procurements As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products. For purposes of this clause: Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.”

## 13. ACCESS TO RECORDS



- a. Standard. All recipients, subrecipients, successors, transferees, and assignees must acknowledge and agree to comply with applicable provisions governing DHS access to records, accounts, documents, information, facilities, and staff. Recipients must give DHS/FEMA access to, and the right to examine and copy, records, accounts, and other documents and sources of information related to the federal financial assistance award and permit access to facilities, personnel, and other individuals and information as may be necessary, as required by DHS regulations *and* other applicable laws or program guidance. See DHS Standard Terms and Conditions: Version 8.1 (2018). Additionally, Section 1225 of the Disaster Recovery Reform Act of 2018 prohibits FEMA from providing reimbursement to any state, local, tribal, or territorial government, or private non-profit for activities made pursuant to a contract that purports to prohibit audits or internal reviews by the FEMA administrator or Comptroller General.

Access to Records. The following access to records requirements apply to this contract:

- i. The Contractor agrees to provide Participating Public Agency, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
- ii. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
- iii. The Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.
- iv. In compliance with the Disaster Recovery Act of 2018, the Participating Public Agency and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

## **14. CHANGES**

- a. Standard. To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope.
- b. Applicability. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

## **15. DHS SEAL, LOGO, AND FLAGS**

- a. Standard. Recipients must obtain permission prior to using the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials. See DHS Standard Terms and Conditions: Version 8.1 (2018).
- b. Applicability. FEMA recommends that all non-Federal entities place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.
- c. "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

## 16. COMPLIANCE WITH FEDERAL LAW, REGULATIONS, AND EXECUTIVE ORDERS

- a. Standard. The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.
- b. Applicability. FEMA recommends that all non-Federal entities place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA policies, procedures, and directives.
- c. "This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives."

## 17. NO OBLIGATION BY FEDERAL GOVERNMENT

- a. Standard. FEMA is not a party to any transaction between the recipient and its contractor. FEMA is not subject to any obligations or liable to any party for any matter relating to the contract.
- b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.
- c. "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

## 18. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

- a. Standard. Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or fraudulent claims for payment to the federal government. See DHS Standard Terms and Conditions: Version 8.1 (2018); and 31 U.S.C. §§ 3801-3812, which details the administrative remedies for false claims and statements made. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.
- b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.
- c. "The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."
- d. In the event FTA or DOT funding is used by a Participating Public Agency, Contractor further acknowledges U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, and apply to its actions pertaining to this Contract. Upon execution of the underlying Contract, Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying Contract or the FTA assisted project for which this Contract Work is being performed.

In addition to other penalties that may be applicable, Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on Contractor to the extent the Federal Government deems

appropriate.

Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307 (n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

*Contractor agrees to include the above clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.*

**Offeror agrees to comply with all terms and conditions outlined in the FEMA Special Conditions section of this solicitation.**

Offeror's Name: Harrell's, LLC

Address, City, State, and Zip Code:

5105 New Tampa Hwy, Lakeland, FL 33815

Phone Number: 863/ 687-2774 Fax Number: \_\_\_\_\_

Printed Name and Title of Authorized Representative:

Ella Kimbra, SVP/HR

Email Address: Bids@Harrells.com

Signature of Authorized Representative: Ella Kimbra

Date: 9-13-2023

**Exhibit G**  
**New Jersey Business Compliance**

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**NEW JERSEY BUSINESS COMPLIANCE**

Suppliers intending to do business in the State of New Jersey must comply with policies and procedures required under New Jersey statutes. All offerors submitting proposals must complete the following forms specific to the State of New Jersey. Completed forms should be submitted with the offeror's response to the RFP. Failure to complete the New Jersey packet will impact OMNIA Partners' ability to promote the Master Agreement in the State of New Jersey.

DOC #1	Ownership Disclosure Form
DOC #2	Non-Collusion Affidavit
DOC #3	Affirmative Action Affidavit
DOC #4	Political Contribution Disclosure Form
DOC #5	Stockholder Disclosure Certification
DOC #6	Disclosure of Investment Activities in Iran, Russia and Belarus
DOC #7	New Jersey Business Registration Certificate
DOC #8	EEOAA Evidence
DOC #9	MacBride Principals Form

New Jersey suppliers are required to comply with the following New Jersey statutes when applicable:

- all anti-discrimination laws, including those contained in N.J.S.A. 10:2-1 through N.J.S.A. 10:2-14, N.J.S.A. 10:5-1, and N.J.S.A. 10:5-31 through 10:5-38;
- Prevailing Wage Act, N.J.S.A. 34:11-56.26, for all contracts within the contemplation of the Act;
- Public Works Contractor Registration Act, N.J.S.A. 34:11-56.26; and
- Bid and Performance Security, as required by the applicable municipal or state statutes.

**STATEMENT OF OWNERSHIP DISCLOSURE**

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

**Name of Organization:** Harrell's, LLC

**Organization Address:** 5105 New Tampa Hwy, Lakeland, FL 33815

**Part I Check the box that represents the type of business organization:**

- ☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- ☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- ☐ For-Profit Corporation (any type) ☒ Limited Liability Company (LLC)
- ☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)
- ☐ Other (be specific): \_\_\_\_\_

**Part II**

- ☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. **(COMPLETE THE LIST BELOW IN THIS SECTION)**

OR

- ☒ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. **(SKIP TO PART IV)**

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

**Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II**

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**


Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

**Please list** the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above.** The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

**Part IV Certification**

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the **<name of contracting unit>** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with **<type of contracting unit>** to notify the **<type of contracting unit>** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the **<type of contracting unit>** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):	Ella Kimbrel	Title:	SVP/HR
Signature:		Date:	9-15-2023

**NON-COLLUSION AFFIDAVIT**

<b>STANDARD BID DOCUMENT REFERENCE</b>	
	<b>Reference: VII-H</b>
Name of Form:	<b>NON-COLLUSION AFFIDAVIT</b>
Statutory Reference:	No specific statutory reference State Statutory Reference N.J.S.A. 52:34-15
Instructions Reference:	Statutory and Other Requirements VII-H
Description:	The Owner's use of this form is optional. It is used to ensure that the bidder has not participated in any collusion with any other bidder or Owner representative or otherwise taken any action in restraint of free and competitive bidding.

State of ~~New Jersey~~ Florida  
County of **POLK**

I, Ella Kimbrel residing in City of Lakeland  
(name of affiant) (name of municipality)  
in the County of Polk and State of Florida of full  
age, being duly sworn according to law on my oath depose and say that:

the bidder making this Proposal for the bid

entitled **RFP-RH-23-037**, and that I executed the said proposal with  
(title of bid proposal)  
full authority to do so that said bidder has not, directly or indirectly entered into any agreement,  
participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in  
connection with the above named project; and that all statements contained in said proposal and in this  
affidavit are true and correct, and made with full knowledge that the \_\_\_\_\_  
**City of Rochester Hills** relies upon the truth of the statements contained in said Proposal  
(name of contracting unit)  
and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by  
**Harrell's, LLC**

before me this day

Lyella Fombal  
Signature

Sept 15, 2023

Ella Kimbrel  
(Type or print name of affiant under signature)

Notary public of Florida

My Commission expires 3/14/20

(Seal)





**AFFIRMATIVE ACTION AFFIDAVIT  
(P.L. 1975, C.127)**

**Company Name:** Harrel's, LLC  
**Street:** 5105 New Tampa Hwy  
**City, State, Zip Code:** Lakeland, FL 33815

**Proposal Certification:**

Type text here

Indicate below company's compliance with New Jersey Affirmative Action regulations. Company's proposal will be accepted even if company is not in compliance at this time. No contract and/or purchase order may be issued, however, until all Affirmative Action requirements are met.

**Required Affirmative Action Evidence:**

Procurement, Professional & Service Contracts (Exhibit A)

**Vendors must submit with proposal:**

1. A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

OR

2. A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

OR

3. A photocopy of an Employee Information Report (Form AA302) provided by the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

**Public Work – Over \$50,000 Total Project Cost:**

- A. No approved Federal or New Jersey Affirmative Action Plan. We will complete Report Form AA201. A project contract ID number will be assigned to your firm upon receipt of the completed Initial Project Workforce Report (AA201) for this contract.
- B. Approved Federal or New Jersey Plan – certificate enclosed

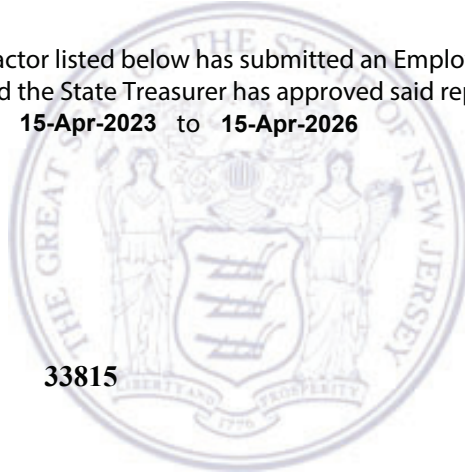
*I further certify that the statements and information contained herein, are complete and correct to the best of my knowledge and belief.*

9-15-2023  
Date

Greg Ambul SVP/HR  
Authorized Signature and Title

**CERTIFICATE OF EMPLOYEE INFORMATION REPORT      RENEWAL**

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of **15-Apr-2023** to **15-Apr-2026**

**HARRELLS LLC****5105 NEW TAMPA HIGHWAY****LAKELAND****FL****33815**

A handwritten signature in black ink, reading "Elizabeth Maher Muoio".

**ELIZABETH MAHER MUOIO**

State Treasurer

**P.L. 1995, c. 127 (N.J.A.C. 17:27)**  
**MANDATORY AFFIRMATIVE ACTION LANGUAGE**

**PROCUREMENT, PROFESSIONAL AND SERVICE**  
**CONTRACTS**

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. The contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this non-discrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisement for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation.

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to P.L. 1975, c. 127, as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to attempt in good faith to employ minority and female workers trade consistent with the applicable county employment goal prescribed by N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time or in accordance with a binding determination of the applicable county employment goals determined by the Affirmative Action Office pursuant to N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time.

The contractor or subcontractor agrees to inform in writing appropriate recruitment agencies in the area, including employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the state of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

The contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and lay-off to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and conform with the applicable employment goals, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor and its subcontractors shall furnish such reports or other documents to the Affirmative Action Office as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Affirmative Action Office for conducting a compliance investigation pursuant to Subchapter 10 of the Administrative Code (NJAC 17:27).



Signature of Procurement Agent

## C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

### Public Agency Instructions

This page provides guidance to public agencies entering into contracts with business entities that are required to file Political Contribution Disclosure forms with the agency. **It is not intended to be provided to contractors.** What follows are instructions on the use of form local units can provide to contractors that are required to disclose political contributions pursuant to N.J.S.A. 19:44A-20.26 (P.L. 2005, c. 271, s.2). Additional information on the process is available in Local Finance Notice 2006-1 ([http://www.nj.gov/dca/divisions/dlgs/resources/lfns\\_2006.html](http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html)). Please refer back to these instructions for the appropriate links, as the Local Finance Notices include links that are no longer operational.

1. The disclosure is required for all contracts in excess of \$17,500 that are **not awarded** pursuant to a “fair and open” process (N.J.S.A. 19:44A-20.7).
2. Due to the potential length of some contractor submissions, the public agency should consider allowing data to be submitted in electronic form (i.e., spreadsheet, pdf file, etc.). Submissions must be kept with the contract documents or in an appropriate computer file and be available for public access. **The form is worded to accept this alternate submission.** The text should be amended if electronic submission will not be allowed.
3. The submission must be **received from the contractor and** on file at least 10 days prior to award of the contract. Resolutions of award should reflect that the disclosure has been received and is on file.
4. The contractor must disclose contributions made to candidate and party committees covering a wide range of public agencies, including all public agencies that have elected officials in the county of the public agency, state legislative positions, and various state entities. The Division of Local Government Services recommends that contractors be provided a list of the affected agencies. This will assist contractors in determining the campaign and political committees of the officials and candidates affected by the disclosure.
  - a. The Division has prepared model disclosure forms for each county. They can be downloaded from the “County PCD Forms” link on the Pay-to-Play web site at <http://www.nj.gov/dca/divisions/dlgs/programs/lpcl.html#12>. They will be updated from time-to-time as necessary.
  - b. A public agency using these forms **should edit them to properly reflect the correct legislative district(s)**. As the forms are county-based, **they list all legislative districts** in each county. **Districts that do not represent the public agency should be removed from the lists.**
  - c. Some contractors may find it easier to provide a single list that covers all contributions, regardless of the county. These submissions are appropriate and should be accepted.
  - d. The form may be used “as-is”, subject to edits as described herein.
  - e. The “Contractor Instructions” sheet is intended to be provided with the form. It is recommended that the Instructions and the form be printed on the same piece of paper. The form notes that the Instructions are printed on the back of the form; where that is not the case, the text should be edited accordingly.
  - f. The form is a Word document and can be edited to meet local needs, and posted for download on web sites, used as an e-mail attachment, or provided as a printed document.
5. It is recommended that the contractor also complete a “Stockholder Disclosure Certification.” This will assist the local unit in its obligation to ensure that contractor did not make any prohibited contributions to the committees listed on the Business Entity Disclosure Certification in the 12 months prior to the contract (See Local Finance Notice 2006-7 for additional information on this obligation at [http://www.nj.gov/dca/divisions/dlgs/resources/lfns\\_2006.html](http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html)). A sample Certification form is part of this package and the instruction to complete it is included in the Contractor Instructions. NOTE: This section is not applicable to Boards of Education.

## C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

### Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a “fair and open” process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee\*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
  - of the public entity awarding the contract
  - of that county in which that public entity is located
  - of another public entity within that county
  - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed \$300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an “interest” ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, “a contribution by that person’s spouse or child, residing therewith, shall be deemed to be a contribution by the business entity.” [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor’s responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor’s submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

\* N.J.S.A. 19:44A-3(s): “The term “legislative leadership committee” means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures.”

**C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM**  
Required Pursuant to N.J.S.A. 19:44A-20.26

**This form or its permitted facsimile must be submitted to the local unit  
no later than 10 days prior to the award of the contract.**

**Part I – Vendor Information**

Vendor Name:	Harrell's, LLC		
Address:	5105 New Tampa Hwy		
City:	Lakeland	State: FL	Zip: 33815

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

	Ella Kimbrel	SVP/HR
Signature	Printed Name	Title

**Part II – Contribution Disclosure**

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than \$300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☒ Check here if disclosure is provided in electronic form

Contributor Name	Recipient Name	Date	Dollar Amount
			\$
Harrell's, LLC	Conservatives For Principled Leadership	10/4/2022	\$25,000.00
Harrell's, LLC	Growing Florida's Leadership	10/11/2022	\$2,000.00
Harrell's, LLC	Friends Of Wilton Simpson	10/13/2022	\$15,000.00
Harrell's, LLC	FL Republican Senate Campaign Committee	10/20/2022	\$25,000.00
Harrell's, LLC	Conservatives For Good Government	10/20/2022	\$5,000.00
Harrell's, LLC	Associated Industries Of Florida	11/2/2022	\$10,000.00
Harrell's, LLC	Panhandle Prosperity	2/17/2023	\$5,000.00
Harrell's, LLC	FL Republican Senate Campaign Committee	2/20/2023	\$25,000.00
Harrell's, LLC	Friends Of Jennifer Canady	2/20/2023	\$2,500.00
Harrell's, LLC	Panhandle Prosperity	6/7/2023	\$15,000.00
Harrell's, LLC	Friends Of Jennifer Canady	6/29/2023	\$5,000.00
Harrell's, LLC	Living Life With Purpose	9/14/2023	\$5,000.00

☐ Check here if the information is continued on subsequent page(s)

**List of Agencies with Elected Officials Required for Political Contribution Disclosure**  
**N.J.S.A. 19:44A-20.26**

**County Name:**

State: Governor, and Legislative Leadership Committees

Legislative District #s:

State Senator and two members of the General Assembly per district.

County:

Freeholders

{County Executive}

County Clerk

Surrogate

Sheriff

Municipalities (Mayor and members of governing body, regardless of title):

**USERS SHOULD CREATE THEIR OWN FORM, OR DOWNLOAD  
FROM THE PAY TO PLAY SECTION OF THE DLGS WEBSITE A  
COUNTY-BASED, CUSTOMIZABLE FORM.**

**STOCKHOLDER DISCLOSURE CERTIFICATION****Name of Business:**


☐ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

**OR**

☒ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

**Check the box that represents the type of business organization:**☐ Partnership☐ Corporation☐ Sole Proprietorship☐ Limited Partnership☐ Limited Liability Corporation☐ Limited Liability Partnership☒ Subchapter S Corporation**Sign and notarize the form below, and, if necessary, complete the stockholder list below.****Stockholders:**

Name:	Name:
Home Address:	Home Address:
Name:	Name:
Home Address:	Home Address:
Name:	Name:
Home Address:	Home Address:

Subscribed and sworn before me this <u>15</u> day of <u>Sept</u> <u>2023</u> (Notary Public) My Commission Expires <u>3/14/26</u>		<u>Ella Kimbrel</u> (Affiant) <u>Ella Kimbrel, SVP/HR</u> (Print name & title of affiant)  (Corporate Seal)
--	---	--



**DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN, RUSSIA AND BELARUS****N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) and N.J.S.A. 52:32-60.1**

Pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) and N.J.S.A. 52:32-60.1 any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must certify that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of the Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran, Russia or Belarus. The Chapter 25 list is found on the Division's website at <https://www.state.nj.us/treasury/purchase/>. Vendors/Bidders must review this list prior to completing the below certification. If the Qualified Purchasing Agent of the Atlantic County Utilities Authority finds a person or entity to be in violation of the law, he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

**CHECK THE APPROPRIATE BOX**

I certify, pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4), and N.J.S.A. 52:32-60.1 that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List of entities determined to be engaged in prohibited activities in Iran, Russia or Belarus.

**OR**

I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List. I will provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, has engaged in regarding investment activities in Iran by completing the information requested below.

Entity Engaged in Investment Activities \_\_\_\_\_

Relationship to Vendor/ Bidder \_\_\_\_\_

Description of Activities \_\_\_\_\_

Duration of Engagement \_\_\_\_\_

Anticipated Cessation Date \_\_\_\_\_

*Attach Additional Sheets If Necessary.***CERTIFICATION**

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the ACUA is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the ACUA to notify the Qualified Purchasing Agent in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the ACUA, I am permitting the ACUA to declare any contract(s) resulting from this certification void and unenforceable.

Ella Kimbrel

*Printed Name of Authorized Agent**Signature of Authorized Agent*

SVP/HR

*Title*

9-15-2023

*Date*

Harrell's, LLC

*Company Name*

DOC #7

**NEW JERSEY BUSINESS REGISTRATION CERTIFICATE  
(N.J.S.A. 52:32-44)**

Offerors wishing to do business in New Jersey must submit their State Division of Revenue issued Business Registration Certificate with their proposal here. Failure to do so will disqualify the Offeror from offering products or services in New Jersey through any resulting contract.

<https://www.njportal.com/DOR/BusinessRegistration/>



# STATE OF NEW JERSEY BUSINESS REGISTRATION CERTIFICATE

**Taxpayer Name:** HARRELL'S, LLC

**Trade Name:**

**Address:** P.O. BOX 807  
LAKELAND, FL 33802

**Certificate Number:** 1387539

**Effective Date:** April 01, 2008

**Date of Issuance:** January 25, 2023

**For Office Use Only:**

20230125160348493

DOC #8

**EEOAA EVIDENCE**

Equal Employment Opportunity/Affirmative Action  
Goods, Professional Services & General Service Projects

**EEO/AA Evidence**

Vendors are required to submit evidence of compliance with N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 in order to be considered a responsible vendor.

**One** of the following must be included with submission:

- Copy of Letter of Federal Approval
- Certificate of Employee Information Report
- Fully Executed Form AA302
- Fully Executed EEO-1 Report

See the guidelines at:

[https://www.state.nj.us/treasury/contract\\_compliance/documents/pdf/guidelines/pa.pdf](https://www.state.nj.us/treasury/contract_compliance/documents/pdf/guidelines/pa.pdf)  
for further information.

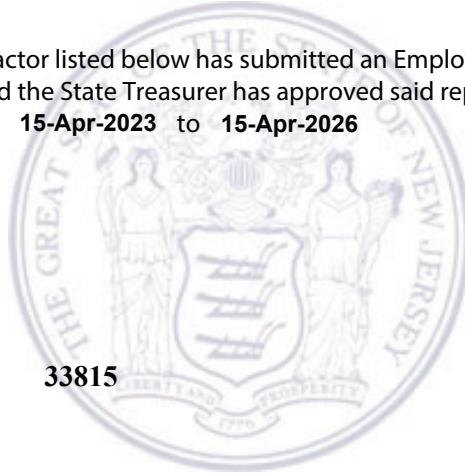
I certify that my bid package includes the required evidence per the above list and State website.

Name: Ella Kimbrel Title: SVP/HR

Signature:  Date: 9-15-2023

**CERTIFICATE OF EMPLOYEE INFORMATION REPORT      RENEWAL**

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of **15-Apr-2023** to **15-Apr-2026**

**HARRELLS LLC****5105 NEW TAMPA HIGHWAY****LAKELAND****FL****33815**

A handwritten signature in black ink, reading "Elizabeth Maher Muoio".

**ELIZABETH MAHER MUOIO**

State Treasurer

DOC #9  
MACBRIDE-PRINCIPLES



STATE OF NEW JERSEY DEPARTMENT OF THE TREASURY  
DIVISION OF PURCHASE AND PROPERTY

33 WEST STATE STREET, P.O. BOX 230  
TRENTON, NEW JERSEY 08625-0230

MACBRIDE PRINCIPALS FORM

BID SOLICITATION #: RFP-RH-23-037 VENDOR/BIDDER: Harrell's, LLC

**VENDOR'S/BIDDER'S REQUIREMENT  
TO PROVIDE A CERTIFICATION IN COMPLIANCE WITH THE MACBRIDE PRINCIPALS  
AND NORTHERN IRELAND ACT OF 1989**

Pursuant to Public Law 1995, c. 134, a responsible Vendor/Bidder selected, after public bidding, by the Director of the Division of Purchase and Property, pursuant to N.J.S.A. 52:34-12, must complete the certification below by checking one of the two options listed below and signing where indicated. If a Vendor/Bidder that would otherwise be awarded a purchase, contract or agreement does not complete the certification, then the Director may determine, in accordance with applicable law and rules, that it is in the best interest of the State to award the purchase, contract or agreement to another Vendor/Bidder that has completed the certification and has submitted a bid within five (5) percent of the most advantageous bid. If the Director finds contractors to be in violation of the principals that are the subject of this law, he/she shall take such action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, on behalf the Vendor/Bidder, certify pursuant to N.J.S.A. 52:34-12.2 that:



**CHECK THE APPROPRIATE BOX**

The Vendor/Bidder has no business operations in Northern Ireland; or



**OR**

The Vendor/Bidder will take lawful steps in good faith to conduct any business operations it has in Northern Ireland in accordance with the MacBride principals of nondiscrimination in employment as set forth in section 2 of P.L. 1987, c. 177 (N.J.S.A. 52:18A-89.5) and in conformance with the United Kingdom's Fair Employment (Northern Ireland) Act of 1989, and permit independent monitoring of its compliance with those principals.

**CERTIFICATION**

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of **my** agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification to be void and unenforceable.

Signature

Date

*Ella Kimbrel*  
Ella Kimbrel, SVP/HR

*9-15-2023*

ATTACHMENT B

LETTERS OF AUTHORIZATION



January 1, 2023

Harrell's, LLC  
P.O Box 807  
Lakeland, FL 33802

To Whom It May Concern,

Harrell's is proud to be the exclusive United States owner, formulator, and distributor of all POLYON® branded products which includes POLYON® NPK, POLYON® Kmag, POLYON® SOP, POLYON® MOP, and POLYON® MAP.

Any fertilizer products containing POLYON® controlled-release fertilizer purchased from the United States must be purchased from Harrell's, LLC or its authorized distributor. This includes all nitrogen, phosphorous, potassium and minor elements which have been coated with POLYON® fertilizer.

Sincerely,

A handwritten signature in black ink that reads 'JR Harrell III'. The signature is stylized, with the first letters of each word being prominent.

Jack R. Harrell, III  
Senior Vice President R&D, Sales and Marketing  
Harrell's, LLC





January 1, 2023

Harrell's, LLC  
P.O Box 807  
Lakeland, FL 33802

To Whom It May Concern,

Harrell's, LLC is proud to be the exclusive formulator and distributor of all Harrell's branded products:

- **Harrell's MAX®** and **Bio-MAX®**– Liquid Foliar Nutritionals including 18-3-6 with UMAXX®, Potassium plus Calcium 4-0-8, Minors, Root Enhancer and N30 Plus, 12-0-0.
- **Harrell's SprayMAX®** – Adjuvants and Colorants including PAR® SG
- **Harrell's HydroMAX®** – Soil Surfactants including Fleet® and Symphony®
- **Harrell's ProtectMAX®** - Solutions against plant diseases including Title Phyte®, Propiconazole and Quinclorac.

These products are proprietary products of Harrell's, LLC that are manufactured by Hocking International Laboratories. Harrell's branded products are formulated with soluble nutrients which allow for foliar and root uptake. When applied at recommended application rates, nutrient loss into the environment is minimized.

Sincerely,

Jack R. Harrell, III  
Senior Vice President R&D, Sales and Marketing  
Harrell's, LLC



8/22/2023

**TO:**

Whom it may concern,

This letter is to certify that Harrell's LLC, of 5105 New Tampa Highway Lakeland, FL 33815 (corporate office) is an AUTHORIZED DISTRIBUTOR in the country of United States of Allied Nutrients products.

Regards,

A handwritten signature in black ink, appearing to read 'Joe Purchase', is written over a light yellow rectangular background.

**Joe Purchase**  
**Vice President**  
**Allied Nutrients**

Office: 970.381.0835

Mobile: 970.381.0835

[jpurchase@alliednutrients.com](mailto:jpurchase@alliednutrients.com)



August 25, 2023

Ben Hall  
Harrell's  
5105 New Tampa Highway  
Lakeland, FL 33815  
Sent via email: [bhall@harrells.com](mailto:bhall@harrells.com)

RE: Authorized distributor letter

Dear Mr. Hall:

This letter confirms that Harrell's is an authorized distributor for AMGUARD Environmental Technologies and/or AMVAC Chemical Corporation products.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian D. Phillips". The signature is stylized with loops and a long horizontal stroke at the end.

Brian D. Phillips  
General Counsel

**CONFIDENTIAL**

August 21, 2023

Harrell's  
Attn: Ben Hall  
5150 New Tampa Highway  
Lakeland, FL 33815

***Re: BASF Corporation Certification***

Dear Mr. Hall:

This letter certifies that Harrell's is currently an authorized agent and distributor of BASF's Turf and Ornamental products for the United States. This is effective for the 2023 and 2024 calendar year.

Sincerely,

BASF CORPORATION



By: \_\_\_\_\_

Name: Trey Warnock

Title: Strategic Account Manager



August 25, 2023

To Whom it May Concern:

Harrell's LLC is authorized to sell Corteva Agriscience Turf & Ornamental products as outlined in the Master Purchase Agreement.

If you have any questions regarding this agreement or the distribution of Corteva Agriscience products, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jay Young', with a stylized flourish at the end.

Jay Young  
Portfolio Lead – Turf and Ornamental  
Corteva Agriscience

August 21, 2023

Dear Recipient,

This letter is to serve as confirmation that Harrell's with a corporate headquarters address at 5105 New Tampa Highway, Lakeland, FL 33815 is an approved and authorized distributor of FMC Corporation, Professional Solutions Division pest, turf and ornamental brands and has authorization to sell to end users within the United States where all applicable products are registered.

Please feel free to contact me directly if additional information is required.

Sincerely,



Jon McDowell  
Commercial Development Manager  
FMC Professional Solutions

863-397-9220

jon.mcdowell@fmc.com



August 21, 2023

To Whom It May Concern:

Harrell's is an authorized distributor for CIVITAS Turf Defense™ in the United States.  
Feel free to contact me directly if you have any questions.

Thank you,

Matthew Weaver  
Technical Sales Manager – Agricultural Sciences  
HF Sinclair Lubricants & Specialties  
Ph. 732-216-1729  
[matthew.weaver@hfsinclair.com](mailto:matthew.weaver@hfsinclair.com)



August 23<sup>rd</sup>, 2023

To whom it may concern:

Milorganite® fertilizer is manufactured by the Milwaukee Metropolitan Sewerage District.  
Harrell's is an authorized distributor of Milorganite®

Cheers,

Jaime Staufenbeil  
Milorganite® Manager  
1-800-287-9645

## MILORGANITE

260 WEST SEEBOTH STREET MILWAUKEE, WI 53204  
P (414) 221-6810 (800) 287-9645

[MILORGANITE.COM](http://MILORGANITE.COM)





**Salem Office**  
8955 Sunnyview Rd NE  
Salem, OR 97305



503 / 588-7333 Phone  
503 / 587-8688 Fax  
sales@mtviewseeds.com

August 21, 2023

To whom it may concern,

I'm writing this letter to let you know that Harrell's, LLC is an authorized distributor for Mountain View Seeds, LLC

Sincerely,

Aaron Kuenzi  
Seed Division Manager  
503-588-7333

***Our Mission: An Agricultural Cooperative Dedicated To  
Innovative Solutions, Excellent Service, & Long-Term Relationships***



**August 23, 2023**

**Laura Feaster  
Harrell's  
5105 New Tampa Highway  
Lakeland, FL 33815**

**Dear Ms. Feaster,**

**This letter will serve as confirmation that Harrell's is an authorized distributor for all products manufactured by Natural Repellents, LLC (Tick Killz).**

**Sincerely,**

**Mark Wilson  
President  
Natural Repellents, LLC  
973-277-3904  
mwilson1123@optonline.net**



August 23, 2023

**Letter of Authorization**

Subject: Nature Safe dealership/distributor verification letter – Harrell’s

To Whom It May Concern,

This letter is to verify that Harrell’s is an authorized dealer/distributor of Nature Safe Fertilizers.

Please advise if additional information is required.

Sincerely,

A handwritten signature in black ink that reads 'Chuck McKenna'.

Chuck McKenna

Regional Sales Manager, Midwest/ Northeast

859-619-4563

[cmckenna@naturesafe.com](mailto:cmckenna@naturesafe.com)

**Making Good Growing Better**

Visit [naturesafe.com](https://naturesafe.com) to learn more.



August 21, 2023

Harrell's LLC  
5105 New Tampa Highway  
Lakeland, FL 33815

11901 S. Austin Ave.  
Alsip, IL 60803

+1 (708) 377-1330

[nufarm.com](http://nufarm.com)

**RE: Authorized Distributor of Nufarm Products**

To Whom It May Concern:

We hereby certify that Harrell's LLC is an authorized distributor of Nufarm Americas Inc.'s products.

If you have any questions regarding the contents of this letter, please direct them to Michael Molchan via email at [michael.molchan@nufarm.com](mailto:michael.molchan@nufarm.com).

Sincerely,  
NUFARM AMERICAS INC.

By: Michael F. Molchan

Michael F. Molchan  
Northeast Regional Sales Manager

**Mary Eisner**

---

**Subject:** FW: OMYA FW: Request For Vendor Authorized Distributor Letter

---

**From:** Brinkley Roberson <[brinkley.roberson@omya.com](mailto:brinkley.roberson@omya.com)>  
**Sent:** Monday, August 21, 2023 4:43 PM  
**To:** Laura Feaster <[LFeaster@Harrells.com](mailto:LFeaster@Harrells.com)>  
**Cc:** Richard Zap <[richard.zap@omya.com](mailto:richard.zap@omya.com)>  
**Subject:** RE: Request For Vendor Authorized Distributor Letter

To Whom it may Concern,

This email is to state that Harrell's is an authorized distributor of OMYA, Inc. products. These products include but are not limited to: Greenlight S, Greenlight S Prime, Greenlight S Max, Greenlight Ca, Greenlight Ca Prime, Greenlight Ca Max, Greenlight Mg, Greenlight Mg Prime, and Greenlight Mg Max.

Best regard,

Brinkley

Best Regards

**Brinkley Roberson**  
**Sales Manager**

Omya Inc.  
4605 Duke Drive, Suite 700  
Mason, Ohio 45040  
USA

Mobile: +1 910-612-8894  
eMail: [brinkley.roberson@omya.com](mailto:brinkley.roberson@omya.com)  
Internet: [www.omya.com](http://www.omya.com)



Teams: [Brinkley.Roberson](#)

[Data Protection](#)



"This message contains information that may be confidential or privileged and is intended only for the individual or entity named above. No one else may disclose, copy, distribute or use the contents of this message. Unauthorized use, dissemination and duplication is strictly prohibited, and may be unlawful. All personal messages express views solely



August 22, 2023

Harrell's LLC  
5105 New Tampa Highway  
Lakeland FL 33815

Dear Laura

Organic Products Company Inc has given permission to Harrell's LLC to distribute its product lines, including but not limited to, NutriHold, NutriHold Organic and NurtiHold dry.

Harrell's LLC is also authorized to repackage and private label these products under the Earthmax name.

Sincerely

Jack M Reiner Jr  
President  
Organic Products Company Inc



PO Box 179  
Clifford, Ontario N0G 1M0  
www.brettyoung.ca | Toll Free: 1-844-322-5067



August 22, 2023

Harrell's, LLC  
5105 New Tampa Highway  
Lakeland, FL, 33815

Dear Laura Feaster,

This letter is to confirm that Harrell's LLC is an authorized distributor for BrettYoung's Tru-prill® fertilizers in the state of Massachusetts.

Please feel free to contact us if further information is needed.

Regards,

A handwritten signature in black ink that reads "Stephen Hewgill".

Stephen Hewgill  
Export Sales Representative – Brett-Young Seeds Limited



1792 Jodie Parker Rd. (36360)  
P.O. Box 1589  
Ozark, AL 36361-1589  
Phone: 334-774-2515  
Fax: 334-774-9306  
[www.fritinc.com](http://www.fritinc.com)

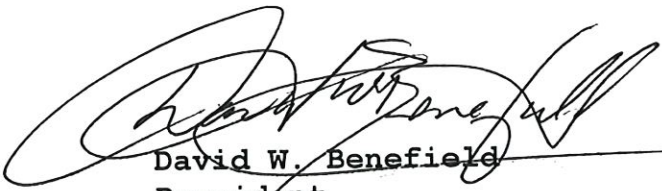
August 21, 2023

TO WHOM IT MAY CONCERN:

This letter serves as notification that Harrell's is an authorized distributor for PRO.SOL, Inc.'s products.

Please let us know if you have any questions or if we can provide further information.

Sincerely,



David W. Benefield  
President





Justin S. Balich  
Pure Seed  
29975 S Barlow Road  
Canby, OR 97013  
August 3, 2023

To whom it may concern,

I'm writing this letter to let you know that Harrell's, LLC is an authorized distributor for Pure Seed.

Sincerely,

Justin S. Balich  
National Sales Manager



**SePRO Corporation** • 11550 North Meridian Street • Suite 600 • Carmel, Indiana 46032-4565  
Phone: (317) 580-8282 • Fax: (317) 580-8290

---

To Whom It May Concern,

This communication is to confirm Harrell's, LLC is an authorized Distributor of SePRO Corporation.

Please reach out with any specific questions.

A handwritten signature in black ink, appearing to read "Je Wf", likely representing John Wendorf.

John Wendorf  
Director- SePRO Turf & Ornamentals  
SePRO Corporation  
[johnw@sepro.com](mailto:johnw@sepro.com)  
(919) 306-5595



Dave Ravel  
Head of Sales North America

Tel: 336-509-1972  
Dave.Ravel  
@syngenta.com

**Syngenta Professional Solutions**  
4802 Worchester Place  
Jamestown, NC 27282  
www.syngenta.com

Commonwealth of Massachusetts  
Strategic Sourcing  
ATTN: Sorraia Tavares  
1 Ashburton Place, rm 1608  
Boston, MA 02108

August 22, 2023

**Syngenta Authorized Channel Partner; Harrell's, LLC**

To Whom it May Concern,

This is to confirm that Harrell's, LLC is an authorized distributor and agent for the Syngenta Professional Solutions product line. If you have any further questions, please feel free to contact me at 336-509-1972.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Ravel", written in a cursive style.

Dave Ravel  
Head of Sales, North America  
Syngenta Professional Solutions



Tee-2-Green Corp.  
123 Main Street  
Anytown, CA 12345

August 21, 2023

Harrell's Inc.  
5105 New Tampa Highway  
Lakeland, FL 33815

To whom it may concern.

This is to confirm that Harrell's Inc. has been an authorized distributor for Tee-2-Green Corp.'s bentgrass seed products since 2015.

We are pleased with the relationship we have developed with Harrell's Inc. and look forward to continuing to work together in the future.

Sincerely,

**Jodi Crosby**

General Manager

**TEE-2-GREEN | T2G**

D: 503-263-0730 | O: 800-547-0255

F: 503-263-0745 | <https://www.tee-2-green.com/>

**BENTGRASS. IT'S ALL WE DO.**

Grower Owned Since 1973

ATTACHMENT C

# SEED TECH SHEETS

Kentucky Bluegrass

# JUMP START

## THE FOUNDATION OF EXCELLENCE

A research first approach of perfecting turfgrass performance.

### Variety information

**Description:**

Jump Start is a quick establishing elite Kentucky bluegrass. It is a Unique/America hybrid with a medium dark green color, medium fine texture and good density. It has good heat tolerance, moderate drought tolerance, stays green longer than most other bluegrasses, and has quick recovery after drought and summer stress. Jump Start has great early spring green up and is resistant to billbugs, summer patch syndrome, powdery mildew, red thread, leaf spot, dollar spot, leaf rust, stripe smut, stem rust, pink snow mold and typhula blight.

**Applications:**

With its quick germination and establishment, Jump Start is great for sports turf use especially for overseeding existing turf areas between games on athletic fields. Jump Start has good traffic tolerance because of its high density enabling quick recovery after traffic events. Sod farm production, golf course fairways and roughs, and commercial landscaping are several other uses. Jump Start has good traffic tolerance because of its high density, enabling quick recovery after games.

**Geographical Adaption:**

Jump Start is adapted to the cool season zone and does well in the northern and transition zone where Kentucky bluegrasses are used. It can be seeded at 2-3lbs /1000sq. ft.(125kg/ha) during early fall or spring. Fertilize at 3-4lb N/1000sq.ft./year (170kg/ha).

### PRODUCT FEATURES

Speed of establishment	● ● ● ● ●
Drought Tolerance	● ● ● ● ●
Spring green-up	● ● ● ● ●
Salt Tolerance	● ● ● ● ●
Dollar Spot	● ● ● ● ●
Winter Color	● ● ● ● ●
Seeding Rate	2-3 lbs /1000sq. ft (125 kg/ha)



[www.pureseed.com](http://www.pureseed.com)

PURESEED®

Mean establishment and turf quality ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2021 near Rolesville, NC and maintained at a 1" mowing height.

Entry	Est.		Turf Quality	
	2 wk	3 wk	Summer	Mean
<b>Right</b>	<b>6.0<sup>1</sup></b>	<b>7.3</b>	<b>5.7<sup>2</sup></b>	<b>6.1</b>
Midnight	5.7	6.3	6.9	6.1
<b>PureBlue</b> (33% ea. New Moon, Right, Moonlight SLT)	<b>6.0</b>	<b>6.7</b>	<b>5.9</b>	<b>6.0</b>
Electric	6.0	6.7	6.3	6.0
Skye	3.7	4.0	6.5	5.9
Avalanche	3.0	5.0	6.1	5.8
Mazama	5.7	6.7	6.0	5.8
<b>Jump Start</b>	<b>6.3</b>	<b>7.7</b>	<b>4.8</b>	<b>5.7</b>
Bluebank	5.0	6.3	5.3	5.6
<b>New Moon</b>	<b>5.3</b>	<b>6.0</b>	<b>5.8</b>	<b>5.5</b>
<b>PureBlue Elite</b> (30% ea. Endurance, New Moon, Right)	<b>5.3</b>	<b>7.3</b>	<b>5.8</b>	<b>5.5</b>
<b>PureBlue Elite TWCA</b> (70% Desert Moon, 30% Jump Start)	<b>6.0</b>	<b>6.0</b>	<b>5.1</b>	<b>5.4</b>
Babe	4.3	5.7	5.1	5.4
<b>Endurance</b>	<b>4.7</b>	<b>6.3</b>	<b>5.1</b>	<b>5.3</b>
Paloma	3.3	4.7	5.3	5.3
Turf Blue HGT (29% Barvette HGT, 24% Barrari; 15% ea. Barimpala, Barserti, Barrister)	6.0	6.7	5.3	5.3
<b>Desert Moon</b>	<b>3.3</b>	<b>4.3</b>	<b>4.9</b>	<b>5.2</b>
<b>Moonlight SLT</b>	<b>6.3</b>	<b>6.7</b>	<b>4.6</b>	<b>5.2</b>
Blueberry	5.7	6.3	4.6	5.1
K15-172	6.0	6.0	4.4	5.1
Legend	4.7	6.0	5.4	5.1
Atlantis (27.31% Rock-It, 27.20% Quartz, 22.36% Selway, 22.28% Ashland)	5.3	5.7	4.7	5.0
Shamrock	5.7	6.0	5.1	5.0
<b>PureBlue TWCA</b> (35% ea. Full Moon, Tirem; 30% Harvest Moon)	<b>5.7</b>	<b>6.7</b>	<b>4.7</b>	<b>4.9</b>
<b>Quick Blue 1</b> (50% ea. Jump Start, Tirem)	<b>5.3</b>	<b>6.7</b>	<b>4.4</b>	<b>4.9</b>
Denali II	4.7	6.0	4.8	4.9
Dublin	6.7	7.0	4.3	4.9
Jackrabbit	7.0	7.0	4.3	4.9
<b>Full Moon</b>	<b>4.7</b>	<b>6.0</b>	<b>4.4</b>	<b>4.8</b>
<b>PureBlue Workhorse TWCA</b> (45% ea. Full Moon, Tirem; 10% Jump Start)	<b>5.3</b>	<b>6.3</b>	<b>4.8</b>	<b>4.8</b>
Blue Ghost	3.3	4.7	4.3	4.8
Turf Blue Pro (30% ea. Barduke, Barrari, Bar PP 110358; 10% Barrister)	5.7	6.3	4.7	4.8
<b>Harvest Moon</b>	<b>6.0</b>	<b>7.0</b>	<b>4.3</b>	<b>4.6</b>
<b>Quick Blue 2</b> (50% ea. Jump Start, Kickstart)	<b>5.0</b>	<b>7.0</b>	<b>4.2</b>	<b>4.6</b>
Dragon	6.3	7.3	4.2	4.5
Bewitched	1.7	2.3	5.0	4.3
<b>Tirem</b>	<b>4.3</b>	<b>5.3</b>	<b>4.0</b>	<b>4.1</b>
Diva	4.7	5.0	3.8	4.1
K20-2	3.7	5.0	2.9	4.0
K15-167	1.7	2.0	4.8	3.6
<b>LSD (0.05)</b>	<b>1.2</b>	<b>1.0</b>	<b>1.0</b>	<b>0.7</b>
<b>CV (%)</b>	<b>14.7</b>	<b>10.9</b>	<b>12.4</b>	<b>8.5</b>

<sup>1</sup>9 = 100% established; <sup>2</sup>9 = ideal

8 lb N/1000 ft<sup>2</sup> applied in 2022; irrigated to prevent drought stress

Entries highlighted in **green** are available from Pure Seed

Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

Mean turf performance ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 near Rolesville, NC and maintained at a 1" mowing height.

Entry	Crown Rust	Winter Color	Summer Patch	Turf Quality		
	08 Oct 21	11 Feb 22	2022	2021	2022	Mean
K17-182	9.0 <sup>1</sup>	8.3 <sup>2</sup>	4.3 <sup>1</sup>	5.6 <sup>3</sup>	6.3	6.0
T17-47	8.7	8.0	8.4	6.0	6.1	6.0
<b>Right</b>	<b>9.0</b>	<b>7.7</b>	<b>3.6</b>	<b>5.8</b>	<b>5.9</b>	<b>5.9</b>
<b>Kickstart</b>	<b>7.7</b>	<b>7.7</b>	<b>6.1</b>	<b>6.0</b>	<b>5.8</b>	<b>5.9</b>
Midnight	8.0	6.0	6.9	5.7	5.9	5.8
T15-44	6.7	6.3	5.9	6.1	5.6	5.8
<b>PureBlue Elite TWCA (70% Desert Moon, 30% Jump Start)</b>	<b>7.7</b>	<b>6.3</b>	<b>6.7</b>	<b>5.7</b>	<b>5.8</b>	<b>5.7</b>
Electric	9.0	7.7	3.6	5.5	5.9	5.7
K20-1	8.3	7.0	2.3	5.6	5.8	5.7
Bluebank	9.0	5.7	6.6	5.8	5.4	5.6
K17-187	7.7	5.3	3.7	5.2	6.1	5.6
K19-206	7.7	6.7	6.0	5.0	6.2	5.6
K19-208	7.3	6.7	5.3	5.4	5.8	5.6
Skye	7.3	5.7	7.7	5.6	5.7	5.6
TX8-56	8.7	6.7	4.3	5.3	5.7	5.5
<b>PureBlue Elite (33% ea. Endurance, New Moon, Right)</b>	<b>7.3</b>	<b>5.0</b>	<b>3.4</b>	<b>5.6</b>	<b>5.2</b>	<b>5.4</b>
11-7	8.7	6.0	2.4	5.4	5.4	5.4
<b>New Moon</b>	<b>7.7</b>	<b>2.7</b>	<b>4.3</b>	<b>5.3</b>	<b>5.4</b>	<b>5.3</b>
<b>PureBlue Workhorse TWCA (45% ea. Full Moon, Tirem; 10% Jump Start)</b>	<b>6.0</b>	<b>6.0</b>	<b>6.3</b>	<b>5.3</b>	<b>5.3</b>	<b>5.3</b>
Avalanche	9.0	5.3	5.5	5.2	5.5	5.3
Prosperity	6.0	2.3	2.5	6.1	4.4	5.3
Turf Blue HGT (29.38% Barvette HGT, 24.49% Barrari, 14.72% Barimpala; 14.71% ea. Baserati, Barrister)	8.7	5.3	8.4	5.6	5.0	5.3
<b>Harvest Moon</b>	<b>8.3</b>	<b>7.0</b>	<b>3.7</b>	<b>5.0</b>	<b>5.4</b>	<b>5.2</b>
K20-3	9.0	6.7	3.8	5.1	5.3	5.2
Legend	7.7	5.0	5.5	5.5	4.8	5.2
Mazama	9.0	4.7	6.6	5.7	4.7	5.2
<b>Super Moon</b>	<b>8.7</b>	<b>5.3</b>	<b>6.0</b>	<b>4.7</b>	<b>5.4</b>	<b>5.1</b>
<b>Desert Dream</b>	<b>9.0</b>	<b>4.7</b>	<b>3.0</b>	<b>5.0</b>	<b>5.2</b>	<b>5.1</b>
Atlantis (27.31% Rock-It, 27.20% Quartz, 22.36% Selway, 22.28% Ashland)	8.3	6.0	4.5	5.0	5.2	5.1
K13-140	7.7	5.7	5.8	5.0	5.2	5.1
<b>Desert Moon</b>	<b>7.7</b>	<b>4.0</b>	<b>8.4</b>	<b>5.1</b>	<b>5.0</b>	<b>5.0</b>
Blueberry	7.7	4.3	3.7	5.3	4.7	5.0
Dublin	8.0	7.7	3.3	4.8	5.1	5.0
K15-163A	7.3	6.0	2.9	5.0	4.8	4.9
K15-172	7.3	4.0	5.2	4.6	5.1	4.9
<b>Endurance</b>	<b>8.0</b>	<b>5.3</b>	<b>3.8</b>	<b>4.5</b>	<b>4.9</b>	<b>4.7</b>
<b>PureBlue (25% ea. Endurance, Full Moon, Moonlight SLT, Tirem)</b>	<b>8.3</b>	<b>5.0</b>	<b>2.8</b>	<b>4.7</b>	<b>4.7</b>	<b>4.7</b>
Cutting Edge	8.3	5.7	1.3	4.5	4.8	4.7
K19-204	6.3	4.0	6.6	4.0	5.3	4.6
Shamrock	7.3	4.7	4.0	4.5	4.7	4.6



Mean turf performance ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 near Rolesville, NC and maintained at a 1" mowing height (Cont'd).

Entry	Crown Rust	Winter Color	Summer Patch	Turf Quality		
	08 Oct 21	11 Feb 22	2022	2021	2022	Mean
<b>Moonlight SLT</b>	<b>8.3</b>	<b>3.7</b>	<b>1.2</b>	<b>5.0</b>	<b>3.9</b>	<b>4.4</b>
Turf Blue Pro (30% ea. Barduke, Barrari, Baserati, 10% Barrister)	7.7	5.3	5.1	4.4	4.2	4.3
K15-167	6.3	2.3	5.4	4.5	3.9	4.2
K19-201	5.7	4.0	3.5	4.0	4.2	4.1
K20-4	2.3	6.0	4.6	3.8	4.5	4.1
<b>Tirem</b>	<b>8.3</b>	<b>5.7</b>	<b>3.2</b>	<b>3.8</b>	<b>4.2</b>	<b>4.0</b>
K20-5	4.0	7.7	3.3	3.4	4.5	4.0
K18-198	3.0	2.3	1.3	3.9	3.7	3.8
Diva	7.0	4.0	1.8	3.8	3.6	3.7
Bewitched	6.7	3.0	2.8	4.5	2.6	3.6
K16-178	5.0	5.7	2.3	3.4	3.8	3.6
K18-197	5.7	5.0	5.8	3.3	3.9	3.6
K20-2	8.7	4.0	1.3	3.7	3.3	3.5
K18-199	4.7	3.7	1.3	3.7	3.0	3.4
K19-202	7.0	4.3	3.6	3.3	3.4	3.3
<b>Full Moon</b>	<b>6.0</b>	<b>7.0</b>	<b>6.5</b>	<b>2.6</b>	<b>3.5</b>	<b>3.1</b>
K16-179	6.7	4.3	3.4	3.0	2.8	2.9
<b>LSD (0.05)</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>1.1</b>	<b>1.0</b>	<b>0.9</b>
<b>CV (%)</b>	<b>17.1</b>	<b>23.6</b>	<b>29.0</b>	<b>14.8</b>	<b>13.1</b>	<b>12.2</b>

<sup>1</sup>9 = no disease; <sup>2</sup>9 = dark green; <sup>3</sup>9 = ideal

4 lb N/1000 ft<sup>2</sup> applied in 2022; irrigated to prevent drought stress

Entries highlighted in green are available from Pure Seed

Pure Seed entries highlighted in orange are TWCA qualified

Highlighted means are in top statistical group

Mean establishment and turf quality ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2021 (Blk 10) near Hubbard, OR and maintained at a 0.5" mowing height.

Entry	Establishment 3 wk	Turf Quality Mean
<b>New Moon</b>	<b>6.0<sup>1</sup></b>	<b>6.8<sup>2</sup></b>
11-7	5.7	6.8
<b>Endurance</b>	<b>5.7</b>	<b>6.6</b>
K15-167	5.0	6.6
<b>PureBlue</b> (33% ea. New Moon, Right, Moonlight SLT)	<b>6.7</b>	<b>6.5</b>
Electric	7.3	6.5
<b>PureBlue TWCA</b> (35% ea. Full Moon, Tirem; 30% Harvest Moon)	<b>6.3</b>	<b>6.3</b>
<b>Right</b>	<b>7.3</b>	<b>6.3</b>
Lunar	4.0	6.3
<b>Desert Moon</b>	<b>6.3</b>	<b>6.2</b>
K15-172	7.3	6.2
Prosperity	6.3	6.2
<b>Harvest Moon</b>	<b>7.3</b>	<b>6.1</b>
K20-2	5.0	6.1
<b>Jump Start</b>	<b>7.0</b>	<b>6.0</b>
<b>Moonlight SLT</b>	<b>6.0</b>	<b>6.0</b>
<b>Quick Blue 1</b> (50% ea. Jump Start, Tirem)	<b>6.7</b>	<b>6.0</b>
Paloma	5.0	6.0
Avalanche	5.0	5.9
Dublin	6.3	5.9
<b>Full Moon</b>	<b>6.0</b>	<b>5.8</b>
Krypton	7.7	5.7
Bewitched	5.0	5.6
Jackrabbit	8.0	5.6
Babe	6.7	5.5
<b>Quick Blue 2</b> (50% ea. Jump Start, Kickstart)	<b>8.0</b>	<b>5.4</b>
Blue Ghost	5.7	5.4
Milagro	7.0	5.4
Midnight	5.0	5.3
Tumalo	4.3	5.3
Denali II	7.0	5.2
Dragon	7.0	5.1
Kenblue	7.7	4.1
<b>LSD (0.05)</b>	<b>1.1</b>	<b>0.5</b>
<b>CV (%)</b>	<b>11.0</b>	<b>5.4</b>

<sup>1</sup>9 = 100% established; <sup>2</sup>9 = ideal

6 lb N/1000 ft<sup>2</sup> applied in 2022; irrigated to prevent drought stress

Entries highlighted in **green** are available from Pure Seed

Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

Mean winter color and turf quality ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and maintained at a 1" mowing height.

Entry	Winter Color		Turf Quality		
	17 Feb 21	17 Feb 22	2021	2022	Mean
K13-140	6.0 <sup>1</sup>	7.0	7.6 <sup>2</sup>	6.8	7.2
<b>New Moon</b>	<b>7.0</b>	<b>4.3</b>	<b>7.3</b>	<b>6.8</b>	<b>7.1</b>
T17-47	9.0	8.7	7.2	6.9	7.1
TX8-56	6.3	6.7	7.3	7.0	7.1
K19-201	6.0	5.7	7.4	6.6	7.0
K20-3	6.0	6.0	7.6	6.4	7.0
<b>PureBlue Elite TWCA (70% Desert Moon, 30% Jump Start)</b>	<b>8.0</b>	<b>7.7</b>	<b>7.2</b>	<b>6.6</b>	<b>6.9</b>
K20-1	3.0	5.3	6.9	6.9	6.9
K20-2	3.7	4.0	7.2	6.6	6.9
K15-172	4.0	5.7	6.7	6.9	6.8
K17-182	8.0	8.3	7.2	6.4	6.8
K17-187	3.7	4.3	7.2	6.3	6.8
11-7	7.3	6.0	7.1	6.4	6.7
Moonshine	5.7	6.0	6.3	7.0	6.7
<b>Desert Dream</b>	<b>7.0</b>	<b>6.3</b>	<b>7.3</b>	<b>5.9</b>	<b>6.6</b>
<b>Kickstart</b>	<b>8.7</b>	<b>8.0</b>	<b>6.3</b>	<b>6.3</b>	<b>6.6</b>
Electric	5.3	7.7	6.4	6.9	6.6
Mazama	5.0	6.3	6.6	6.7	6.6
Prosperity	7.3	4.7	6.8	6.5	6.6
T15-44	8.3	8.0	6.3	6.3	6.6
<b>Right</b>	<b>6.3</b>	<b>7.3</b>	<b>6.7</b>	<b>6.3</b>	<b>6.5</b>
Dublin	7.3	8.3	6.6	6.4	6.5
K19-206	5.0	5.7	7.1	5.9	6.5
K19-208	6.0	7.0	6.7	6.2	6.5
Ridgeline	8.7	6.3	6.6	6.4	6.5
<b>PureBlue Elite (33% ea. Endurance, New Moon, Right)</b>	<b>6.0</b>	<b>6.0</b>	<b>6.9</b>	<b>6.0</b>	<b>6.4</b>
<b>Tirem</b>	<b>6.0</b>	<b>6.3</b>	<b>6.3</b>	<b>6.4</b>	<b>6.4</b>
K15-167	4.3	6.0	6.4	6.3	6.4
K19-202	4.0	5.3	6.4	6.3	6.4
K19-204	5.0	5.3	6.6	6.1	6.4
Pivot	6.3	6.3	6.1	6.8	6.4
Skye	5.0	5.7	6.3	6.4	6.4
<b>Desert Moon</b>	<b>6.0</b>	<b>6.7</b>	<b>6.7</b>	<b>5.8</b>	<b>6.3</b>
<b>PureBlue Workhorse TWCA (45% ea. Full Moon, Tirem; 10% Jump Start)</b>	<b>7.0</b>	<b>7.3</b>	<b>6.3</b>	<b>6.3</b>	<b>6.3</b>
Avalanche	8.3	7.3	6.5	6.0	6.3
K18-197	4.3	6.0	5.9	6.7	6.3
Legend	6.0	6.7	6.3	6.3	6.3
Lunar	5.7	6.7	6.4	6.2	6.3
Shamrock	5.3	6.7	6.0	6.6	6.3
<b>Harvest Moon</b>	<b>6.3</b>	<b>6.3</b>	<b>6.5</b>	<b>5.8</b>	<b>6.2</b>
<b>Moonlight SLT</b>	<b>6.7</b>	<b>5.0</b>	<b>6.8</b>	<b>5.7</b>	<b>6.2</b>
<b>PureBlue (25% ea. Endurance, Full Moon, Moonlight SLT, Tirem)</b>	<b>6.3</b>	<b>5.7</b>	<b>6.4</b>	<b>6.1</b>	<b>6.2</b>
Bewitched	5.0	6.7	6.3	6.1	6.2
Limousine	5.0	4.3	6.5	5.8	6.2
<b>Super Moon</b>	<b>8.7</b>	<b>7.0</b>	<b>6.3</b>	<b>5.9</b>	<b>6.1</b>
Bluebank	6.0	7.7	6.3	5.9	6.1
K20-5	6.7	7.0	5.8	6.3	6.0
Midnight	5.0	7.3	6.2	5.8	6.0
<b>Endurance</b>	<b>5.3</b>	<b>6.0</b>	<b>5.8</b>	<b>6.1</b>	<b>5.9</b>
K15-163A	7.3	6.7	6.1	5.7	5.9
K18-199	6.3	4.3	6.1	5.6	5.9
Sonora	5.0	6.7	5.7	6.2	5.9
Turf Blue HGT (29% Barvette HGT, 24% Barrari, 15% ea. Barimpala; Barserti, Barrister)	6.0	7.7	6.1	5.7	5.9
<b>Full Moon</b>	<b>6.3</b>	<b>7.0</b>	<b>5.4</b>	<b>6.1</b>	<b>5.8</b>
Atlantis (27.31% Rock-It, 27.20% Quartz, 22.36% Selway, 22.28% Ashland)	5.3	5.7	6.2	5.3	5.8
Cutting Edge	7.0	6.3	6.4	5.2	5.8

Mean winter color and turf quality ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and maintained at a 1" mowing height (Cont'd).

Entry	Winter Color		Turf Quality		
	17 Feb 21	17 Feb 22	2021	2022	Mean
Markus	6.7	3.7	6.7	4.9	5.8
Blueberry	4.7	5.7	5.3	6.0	5.7
Sunray	5.3	3.7	5.8	5.6	5.7
Bonaire	5.0	6.0	4.9	6.1	5.5
Diva	4.7	4.3	6.1	4.9	5.5
Limerick	5.0	5.0	5.9	5.1	5.5
K20-4	6.3	6.3	5.8	5.1	5.4
K18-198	4.7	6.3	4.8	5.7	5.3
Merit	4.7	4.3	5.4	5.1	5.3
Ginney II	4.3	6.7	4.9	5.4	5.2
<b>LSD (0.05)</b>	<b>1.2</b>	<b>1.3</b>	<b>0.8</b>	<b>0.6</b>	<b>0.5</b>
<b>CV (%)</b>	<b>12.7</b>	<b>12.8</b>	<b>7.8</b>	<b>5.7</b>	<b>5.0</b>

<sup>1</sup>9 = dark green; <sup>2</sup>9 = ideal

4 lb N/1000 ft<sup>2</sup> applied in 2022

Entries highlighted in green are available from Pure Seed

Pure Seed entries highlighted in orange are TWCA qualified

Highlighted means are in top statistical group

2022 mean drought stress ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and maintained at a 1" mowing height.

Entry	% Green Cover 27 July	Recovery 31 Aug
<b>Tirem</b>	<b>22.2<sup>1</sup></b>	<b>7.3<sup>2</sup></b>
<b>PureBlue Elite TWCA</b> (70% Desert Moon, 30% Jump Start)	<b>21.2</b>	<b>7.0</b>
Lunar	<b>21.1</b>	6.0
Ridgeline	<b>19.5</b>	5.3
<b>PureBlue Workhorse TWCA</b> (45% ea. Full Moon, Tirem; 10% Jump Start)	<b>19.3</b>	<b>6.7</b>
Electric	<b>18.7</b>	7.0
Sonora	<b>18.0</b>	5.3
<b>Full Moon</b>	<b>17.3</b>	<b>5.3</b>
Mazama	<b>17.2</b>	6.0
Moonshine	<b>17.0</b>	7.0
Legend	<b>16.4</b>	5.3
Prosperity	<b>14.6</b>	5.3
Shamrock	<b>14.4</b>	6.7
T17-47	<b>14.1</b>	6.0
K18-197	<b>14.1</b>	5.3
K15-167	<b>14.1</b>	4.3
Diva	<b>13.3</b>	5.0
K20-2	<b>12.5</b>	6.7
<b>New Moon</b>	<b>12.5</b>	<b>4.3</b>
Limerick	<b>12.3</b>	3.0
K18-199	<b>12.2</b>	4.7
K20-3	<b>11.8</b>	5.0
TX8-56	<b>11.6</b>	5.3
<b>Super Moon</b>	<b>11.3</b>	<b>5.0</b>
K20-1	<b>11.1</b>	6.0
<b>Kickstart</b>	<b>11.1</b>	<b>5.3</b>
K19-202	<b>10.8</b>	5.0
T15-44	<b>10.7</b>	5.3
<b>Desert Dream</b>	<b>10.5</b>	<b>2.7</b>
K19-201	<b>10.1</b>	5.7
Merit	<b>10.1</b>	4.3
<b>PureBlue</b> (25% ea. Endurance, Full Moon, Moonlight SLT, Tirem)	<b>10.0</b>	<b>5.0</b>
Skye	<b>9.9</b>	5.7
K15-163A	<b>9.2</b>	4.7
Bluebank	<b>9.1</b>	4.0
11-7	<b>8.8</b>	3.3
K15-172	<b>8.7</b>	6.0
K17-182	<b>7.6</b>	3.7
Turf Blue HGT (29.38% Barvette HGT, 24.49% Barrari, 14.7% ea. Barimpala; Barserti, Barrister)	<b>7.4</b>	6.3
Kenblue	<b>7.4</b>	5.3

2022 mean drought stress ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and maintained at a 1" mowing height (Cont'd).

Entry	% Green Cover 27 July	Recovery 31 Aug
K19-204	7.4	5.0
Bonaire	7.1	6.0
Bewitched	7.0	6.7
Blueberry	6.6	5.7
Dublin	6.6	2.0
Cutting Edge	6.4	2.3
<b>PureBlue Elite</b> (33% ea. Endurance, New Moon, Right)	6.3	5.0
Pivot	6.3	4.7
<b>Endurance</b>	6.2	2.7
Midnight	6.2	1.7
Atlantis (27.31% Rock-It, 27.20% Quartz, 22.36% Selway, 22.28% Ashland)	5.7	4.0
Ginney II	5.3	2.3
K13-140	5.2	3.7
<b>Desert Moon</b>	5.1	4.0
K20-5	4.3	2.3
Sunray	3.9	2.0
Avalanche	3.3	3.7
K20-4	3.2	2.7
K19-206	3.0	4.7
<b>Moonlight SLT</b>	2.7	2.7
K17-187	2.5	4.7
K19-208	2.2	4.0
<b>Harvest Moon</b>	1.5	1.7
<b>Right</b>	1.3	3.3
K18-198	1.3	2.7
Limousine	0.9	1.0
Markus	0.6	1.0
<b>LSD (0.05)</b>	7.9	1.7
<b>CV (%)</b>	51.0	23.6

<sup>1</sup>evaluated using digital image analysis

<sup>2</sup>g = 100% recovered

Entries highlighted in **green** are available from Pure Seed; Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

Mean turf performance ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2019 (Blk 2) near Hubbard, OR and maintained at a 1" mowing height.

Entry	Winter Color		Billbug Damage 15 July 21	Turf Quality			
	19 Feb 21	15 Feb 22		2020	2021	2022	Mean
K17-182	8.0 <sup>1</sup>	8.3	7.7 <sup>2</sup>	7.2 <sup>3</sup>	6.1	7.0	6.8
K15-169	7.0	6.0	6.3	6.8	5.6	6.6	6.4
TX8-56	5.0	6.0	7.3	6.8	5.7	6.5	6.4
Blue Star	5.3	5.0	7.3	6.1	6.1	6.7	6.3
K19-208	6.0	7.0	7.3	6.2	5.9	6.7	6.3
Electric	4.7	6.7	8.0	6.6	5.8	6.3	6.2
K18-197	7.3	6.0	6.7	6.6	5.7	6.1	6.2
Mazama	5.3	6.7	7.7	6.4	5.9	6.2	6.2
Jackrabbit	6.7	6.7	5.3	6.3	5.7	6.3	6.1
Prosperity	6.0	5.0	8.0	6.7	5.5	5.9	6.1
Jump Start	7.3	7.0	5.0	6.5	5.3	6.3	6.0
Kickstart	6.0	7.0	6.3	6.4	5.4	6.1	6.0
Tirem	5.7	5.7	6.7	5.8	5.8	6.3	6.0
Midnight	3.7	7.3	7.3	6.3	5.3	6.4	6.0
T15-44	6.0	7.0	6.7	6.3	5.6	6.1	6.0
T17-47	7.0	6.3	5.3	6.2	5.7	6.0	6.0
Desert Dream	5.0	5.0	5.0	7.3	5.1	5.5	5.9
New Moon	4.3	5.3	7.3	7.2	5.1	5.5	5.9
11-7	6.0	5.3	4.0	7.0	5.4	5.3	5.9
K15-163A	6.0	6.7	6.7	6.6	5.3	5.9	5.9
K16-178	7.0	7.7	4.0	6.0	5.4	6.3	5.9
K19-201	3.7	6.0	5.7	7.2	4.9	5.5	5.9
Full Moon	6.7	7.3	6.3	5.4	5.7	6.3	5.8
Right	5.7	6.3	6.3	6.5	5.4	5.6	5.8
Avalanche	6.0	6.7	2.7	6.8	4.8	5.7	5.8
K13-140	7.0	6.3	4.7	5.9	5.4	5.9	5.8
K15-172	5.3	5.0	4.7	6.6	5.2	5.7	5.8
K19-206	5.0	5.7	6.3	6.6	5.1	5.7	5.8
Orion	4.7	6.7	4.7	6.3	5.0	6.0	5.8
Sonora	5.3	6.0	6.7	5.5	5.7	6.1	5.8
Desert Moon	4.3	5.7	3.3	6.6	5.4	5.1	5.7
Harvest Moon	6.0	6.7	2.3	6.9	4.8	5.4	5.7
Super Moon	5.7	7.0	7.0	5.5	5.3	6.4	5.7
K17-187	3.0	4.7	5.7	7.0	5.1	5.1	5.7
Endurance	6.0	5.3	4.0	6.2	5.2	5.3	5.6
Bluebank	6.0	6.0	3.7	6.2	5.1	5.6	5.6
Denali II	5.0	6.7	5.3	5.9	5.2	5.8	5.6
K19-202	3.3	4.3	5.7	6.0	5.2	5.5	5.6
K19-204	4.3	6.0	5.7	6.1	5.1	5.7	5.6
K8-76NO	2.3	2.7	8.0	6.2	5.4	5.2	5.6
Pivot	5.3	5.0	6.3	5.8	5.1	6.1	5.6
Ridgeline	6.7	6.7	3.7	6.2	5.2	5.4	5.6
Bewitched	5.0	5.7	6.7	5.0	5.5	6.0	5.5
Cutting Edge	5.0	5.7	5.0	6.5	4.7	5.2	5.5
K16-179	6.3	6.3	5.0	6.4	4.9	5.3	5.5
K17-191	6.3	5.7	3.7	6.0	5.0	5.5	5.5
K15-167	3.7	4.3	4.0	6.9	4.7	4.7	5.4
K17-185	3.7	4.7	8.0	6.2	4.8	5.1	5.4
K17-194	4.0	5.3	5.7	6.3	4.8	5.3	5.4
Blue Ghost	5.3	5.7	4.0	5.4	4.9	5.5	5.3
K17-193	4.0	4.7	6.0	6.0	4.8	5.0	5.3
K17-192	5.7	5.3	5.0	5.8	4.6	4.9	5.1
Lunar	4.7	4.3	6.3	5.7	4.8	4.9	5.1
Moonlight SLT	5.0	6.0	4.3	5.3	4.8	4.9	5.0
K18-199	6.0	5.0	5.7	5.2	4.8	5.0	5.0
Milagro	6.0	5.0	5.3	5.2	4.8	5.0	5.0

Mean turf performance ratings for entries in a Kentucky bluegrass turf trial seeded fall of 2019 (Blk 2) near Hubbard, OR and maintained at a 1" mowing height (Cont'd).

Entry	Winter Color		Billbug Damage 15 July 21	Turf Quality			
	19 Feb 21	15 Feb 22		2020	2021	2022	Mean
Sunray	4.0	5.0	5.7	5.6	4.4	5.0	5.0
K18-198	4.3	4.0	5.0	5.5	4.6	4.6	4.9
Diva	4.3	4.3	7.7	4.8	4.7	5.0	4.8
Lucky Star	1.3	2.3	4.3	5.4	3.6	3.5	4.2
Kenblue	5.0	4.0	6.7	4.0	3.8	4.1	4.0
<b>LSD (0.05)</b>	<b>1.4</b>	<b>1.2</b>	<b>1.8</b>	<b>0.7</b>	<b>0.7</b>	<b>1.0</b>	<b>0.6</b>
<b>CV (%)</b>	<b>16.4</b>	<b>13.0</b>	<b>19.2</b>	<b>6.7</b>	<b>8.2</b>	<b>10.6</b>	<b>6.2</b>

<sup>1</sup>9 = dark green; <sup>2</sup>9 = no damage; <sup>3</sup>9 = ideal

0.5 lb N/1000 ft<sup>2</sup> applied in 2022

Entries highlighted in green are available from Pure Seed

Pure Seed entries highlighted in orange are TWCA qualified

Highlighted means are in top statistical group



Kentucky Bluegrass Shade Turf Trial 2022 Year  
End Data

Location: Pure Seed Testing (Canby, OR)

Cooperator: Crystal Fricker

SPONSOR	CULTIVAR	Percent Cover	Turf Quality
		2022	2022
PST	K15-168	96.45	7.92
PST	K19-201	96.98	7.83
PST	K17-187	95.97	7.83
PST	Harvest Moon	92.33	7.83
PST	Right	93.01	7.58
NTR	AKB3869	97.35	7.58
PST	New Moon	95.77	7.33
PST	Desert Dream	94.98	7.25
PST	T17-49	90.37	7.17
NTR	Valley View	91.95	7.17
PST	K20-3	94.79	7.08
PST	K19-202	88.41	7.00
PST	K20-1	96.13	7.00
PST	K19-204	97.88	6.92
PST	Super Moon	92.90	6.83
PST	K13-140	91.07	6.83
PST	K19-206	83.75	6.75
NTR	En Gedi	94.37	6.75
NTR	AKB3201	94.06	6.67
NTR	AKB2949	91.59	6.58
DLF	A14-417	95.48	6.58
PST	K19-208	94.56	6.58
PST	K19-207	86.06	6.50
PST	Tirem	89.59	6.50
PST	K17-182	87.10	6.33
NTR	AKB2543	94.84	6.33
PST	K21-6	82.77	6.33
NTR	AKB3548	95.33	6.08
PST	T17-47	86.73	6.08
PST	K17-188AD	88.92	6.00
PST	K18-199	96.63	5.92
NTR	AKB3216	90.62	5.83
PST	TX8-56	81.81	5.75
PST	K20-4	89.29	5.67
PST	K18-197	93.93	5.67
NTR	AKB3179	90.55	5.67
NTR	AKB3363	88.75	5.67
NTR	AKB2769	89.08	5.67
PST	K16-178	75.69	5.58
NTR	Delta Blue	83.94	5.58
NAg	NAI-15-90	84.63	5.50
SS	NAI-19-181	84.16	5.42
NTR	AKB2403	85.33	5.33
NAg	Jersey	93.17	5.33
NTR	AKB3125	88.77	5.25
SS	NAI-19-90	92.42	5.25
SS	NAI-19-166	90.45	5.25
NTR	AKB2836	89.45	5.00
NTR	AKB2313	86.92	5.00
PPG	A19-1	80.42	4.92
PST	K15-163A	75.05	4.92
PPG	A18-7	79.07	4.83
SS	Skye	79.91	4.83
SS	NAI-19-190 LS	86.01	4.83
NTR	Ridgeline	92.76	4.75
DLF	A10-5	76.15	4.75
DLF	A12-3	91.08	4.75
NTR	Tejas	81.55	4.67
SS	NAI-19-164	88.24	4.67
NTR	AKB3593	91.75	4.58
DLF	Fielder	75.71	4.50
DLF	A19-4	91.32	4.50
NTR	AKB3208	90.04	4.42
PPG	Bolt	74.37	4.42
DLF	A11-49	92.68	4.42
NTR	AKB2795	77.52	4.33
NTR	AKB1658	86.21	4.33
NAg	NAI-19-92	85.64	4.25
PST	K19-203	70.03	4.25
SS	NAI-19-125	82.15	4.25
NAg	NAI-19-64	66.31	4.25
NAg	NAI-19-45	80.30	4.17
NAg	NAI-19-58	77.63	4.17
PPG	A19-16	77.64	4.17
PPG	A18-9	67.31	4.08
NTR	AKB2733	73.30	4.08
DLF	A15-480	83.54	4.08
SS	Wildhorse	70.62	4.00
NAg	NAI-19-179	76.63	4.00
PPG	A12-266	75.54	4.00
NTR	AKB3456	71.18	3.92
DLF	Mercury	84.95	3.92
NAg	NAI-19-42	78.46	3.92
GOR	T14-37	86.65	3.92
DLF	SR 2284	74.42	3.83
DLF	Martha	78.11	3.83
SS	NAI-19-188 LS	79.59	3.83
DLF	A17-4	64.62	3.75
NTR	Mallard	87.05	3.75
DLF	A05-361	83.92	3.75
NAg	Shamrock	79.71	3.75
DLF	SR 2150	82.01	3.75
NTR	Geronimo	71.43	3.67
DLF	A15-8	56.97	3.67
DLF	A12-2	80.43	3.58
PPG	A20-13	85.86	3.58
DLF	A12-1	74.21	3.50
NAg	NAI-17-49	66.16	3.50
SS	Isabel	52.87	3.33
SS	SEKB-4272	78.16	3.33
PPG	Acoustic	68.28	3.25
PST	T15-44	44.79	3.25
PPG	A17-869	65.55	3.25
NTR	AKB1565	69.81	3.17
NTR	AKB3605	64.28	3.08
SS	Kelly	53.98	3.08
PPG	A20-10	61.09	3.00
PPG	A20-12	43.63	2.92
NTR	Deja Blue	64.58	2.83
DLF	A15-7	39.10	2.83
NAg	NAI-17-4	28.17	2.50
PST	T15-42	61.21	2.50
SS	NAI-19-83	59.52	2.50
NAg	Kenblue	18.00	1.75
GOR	GO-KB20-1	26.69	1.42

2022 Average Percent Cover = (1 rating)

2022 Average Turf Quality = (4 ratings)

## Kentucky Bluegrass Turf Trial 2022 Year

End Data

Location: University of Tennessee (Knoxville, TN)

Cooperator: Dr. John Soroachan

SPONSOR	CULTIVAR	Percent Green Cover 2022	DGCI 2022	Turf Quality 2022	SPONSOR	CULTIVAR	Percent Green Cover 2022	DGCI 2022	Turf Quality 2022
PST	K19-208	93.51	0.29	7.91	DLF	A12-3	87.77	0.33	6.61
PST	K17-187	90.87	0.28	7.70	NTR	AKB1658	87.61	0.32	6.59
DLF	Martha	94.13	0.32	7.57	NTR	AKB2769	88.24	0.33	6.59
PST	K17-182	93.13	0.30	7.53	PPG	A12-266	89.03	0.34	6.59
NTR	AKB3605	90.15	0.27	7.49	NTR	AKB2313	84.14	0.30	6.57
SS	NAI-19-83	91.50	0.30	7.41	PST	K13-140	89.06	0.32	6.57
PST	Right	91.37	0.30	7.36	SS	NAI-19-166	89.43	0.33	6.56
PST	T15-44	94.01	0.30	7.34	NAG	NAI-15-90	89.94	0.33	6.55
PST	Tirem	93.17	0.32	7.27	NAG	NAI-17-4	88.04	0.33	6.54
DLF	A17-4	90.58	0.31	7.21	NAG	Shamrock	90.08	0.33	6.54
NTR	AKB3548	89.95	0.30	7.20	DLF	A11-49	88.40	0.34	6.53
PST	K15-163A	89.19	0.30	7.20	PPG	A20-10	88.47	0.33	6.46
DLF	A19-4	90.10	0.31	7.16	NTR	Geronimo	89.75	0.33	6.45
PPG	A18-7	89.84	0.31	7.15	PPG	A17-869	89.98	0.33	6.45
DLF	Mercury	93.15	0.32	7.14	NAG	Kenblue	88.71	0.33	6.44
SS	NAI-19-90	92.66	0.31	7.13	NTR	AKB2949	88.57	0.33	6.44
PPG	Acoustic	89.83	0.31	7.12	SS	NAI-19-125	89.06	0.34	6.42
PST	K19-206	88.06	0.30	7.12	PST	K19-207	78.14	0.29	6.41
NTR	Delta Blue	89.02	0.31	7.12	PST	Desert Dream	89.76	0.34	6.41
PST	Harvest Moon	91.70	0.31	7.12	NTR	En Gedi	87.84	0.31	6.40
PST	New Moon	89.49	0.31	7.11	NAG	NAI-19-179	89.03	0.33	6.39
NTR	AKB3869	84.84	0.26	7.11	DLF	A14-417	90.38	0.35	6.39
PPG	A19-16	93.70	0.32	7.10	SS	NAI-19-190 LS	88.38	0.34	6.38
NTR	AKB3363	89.58	0.31	7.04	PST	K20-4	85.49	0.33	6.37
PST	K19-201	88.08	0.29	7.03	SS	Skye	86.12	0.32	6.35
SS	NAI-19-181	88.87	0.30	7.00	SS	Wildhorse	87.04	0.33	6.35
NAG	NAI-19-58	88.38	0.30	6.99	DLF	A15-7	82.66	0.31	6.34
NTR	AKB2836	91.17	0.32	6.92	DLF	A15-480	88.27	0.33	6.34
PPG	A18-9	87.51	0.31	6.91	PST	K19-202	79.17	0.30	6.34
NTR	AKB3593	90.49	0.31	6.90	PST	K19-203	86.86	0.34	6.32
NAG	NAI-17-49	91.07	0.32	6.89	PPG	A20-13	86.08	0.32	6.31
DLF	A12-2	89.92	0.32	6.88	SS	Kelly	88.64	0.34	6.31
DLF	SR 2284	91.81	0.33	6.87	NTR	Tejas	90.18	0.33	6.31
NTR	Valley View	90.58	0.32	6.86	NAG	NAI-19-64	90.07	0.34	6.31
NAG	NAI-19-45	91.56	0.32	6.86	PST	K18-199	85.47	0.32	6.30
NAG	NAI-19-92	91.85	0.32	6.84	DLF	A10-5	86.44	0.34	6.29
SS	SEKB-4272	88.91	0.31	6.84	NTR	Mallard	86.63	0.34	6.25
NTR	AKB1565	87.95	0.31	6.82	PST	K18-197	86.04	0.31	6.23
DLF	A15-8	91.60	0.32	6.82	PPG	A19-1	86.45	0.34	6.16
PST	T17-47	90.81	0.32	6.82	PST	K16-178	80.74	0.32	6.14
SS	Isabel	91.72	0.33	6.79	NTR	Ridgeline	86.35	0.35	6.09
PPG	A20-12	89.86	0.32	6.79	PST	T17-49	74.07	0.30	6.07
PST	K17-188AD	92.83	0.33	6.78	NTR	AKB2403	80.33	0.31	6.07
PST	K21-6	87.73	0.31	6.78	PST	TX8-56	79.95	0.31	6.06
SS	NAI-19-188 LS	92.03	0.33	6.77	PST	K15-168	79.09	0.32	6.00
DLF	Fielder	88.45	0.32	6.76	NTR	AKB2795	85.63	0.35	6.00
DLF	A05-361	90.61	0.32	6.74	PST	K20-3	84.60	0.33	5.93
NTR	AKB2733	86.27	0.32	6.74	NTR	AKB3179	83.47	0.33	5.90
DLF	SR 2150	91.51	0.34	6.73	NTR	AKB3456	84.69	0.36	5.87
PPG	Bolt	92.43	0.35	6.71	NTR	AKB3216	88.11	0.36	5.84
PST	Super Moon	90.12	0.33	6.70	GOR	GO-KB20-1	81.15	0.34	5.76
NAG	Jersey	90.46	0.32	6.68	NAG	NAI-19-42	76.13	0.34	5.61
PST	K19-204	86.50	0.31	6.68	SS	NAI-19-164	76.65	0.34	5.61
GOR	T14-37	84.50	0.31	6.68	NTR	AKB2543	76.93	0.33	5.50
NTR	Deja Blue	93.16	0.35	6.66	PST	T15-43	82.07	0.39	5.22
PST	T15-42	92.09	0.31	6.66	PST	K15-169	72.64	0.36	4.91
PST	K20-1	91.81	0.34	6.65					
DLF	A12-1	88.57	0.33	6.63					
NTR	AKB3125	89.45	0.32	6.62					
NTR	AKB3208	89.07	0.32	6.62					
NTR	AKB3201	89.81	0.33	6.62					

2022 Average Percent Green Cover = (12 ratings) 2022  
Average DGCI = (12 ratings)

2022 Average Turf Quality = (12 ratings)

## CTBT: 2021 Trial - 21CTPP28

Kentucky Bluegrass Low Mow Turf Trial 2022 Year End Data

Location: Pure Seed Testing (Canby, OR)

Cooperator: Crystal Fricker

		Establishment	Scalping	Stem Rust	Turf Quality			Establishment	Scalping	Stem Rust	Turf Quality
		2022	2022	2022	2022			2022	2022	2022	2022
NTR	AKB2403	5.67	6.33	7.33	7.18	PST	K16-178	6.00	5.33	7.00	5.89
PST	K17-182	5.67	6.33	7.33	6.96	DLF	A15-7	4.33	5.67	7.00	5.85
NAg	NAI-19-92	5.00	5.67	8.00	6.89	PST	T15-42	7.33	4.00	5.00	5.82
SS	NAI-19-90	5.33	6.33	7.33	6.85	PPG	Acoustic	6.00	6.00	6.67	5.81
PST	K19-202	3.33	5.33	6.67	6.81	NTR	AKB3456	5.33	6.67	6.00	5.81
DLF	Martha	5.00	7.67	8.00	6.78	PST	K20-4	6.00	4.67	3.67	5.78
PPG	A18-7	6.00	7.67	7.33	6.67	NTR	Ridgeline	5.00	6.33	5.00	5.78
GOR	T14-37	5.33	7.33	6.33	6.67	PST	K18-199	6.00	5.00	5.67	5.78
PST	K19-208	5.33	6.00	6.00	6.67	DLF	A10-5	4.00	5.67	6.67	5.74
PST	K20-1	6.33	6.67	6.33	6.63	SS	Wildhorse	7.00	5.00	6.00	5.71
PST	K19-201	4.67	7.33	6.33	6.59	GOR	Super Moon	5.00	3.67	7.33	5.71
DLF	A14-417	4.67	5.67	6.67	6.56	NTR	En Gedi	4.00	7.00	5.33	5.71
PST	Right	6.67	5.00	6.33	6.55	NAg	NAI-19-45	6.33	5.33	5.67	5.67
NTR	Delta Blue	5.33	5.00	6.67	6.52	NAg	NAI-17-49	5.00	6.33	6.00	5.67
PST	K19-206	5.67	6.67	7.33	6.52	DLF	A05-361	4.33	7.67	7.33	5.67
DLF	A11-49	5.00	8.33	5.67	6.52	DLF	A12-3	4.33	7.67	6.67	5.63
NTR	AKB3125	6.00	6.33	6.67	6.48	NTR	AKB1658	4.33	6.67	6.67	5.63
PST	K20-3	5.00	7.00	7.00	6.48	PST	Tirem	5.33	6.00	8.00	5.63
PST	T17-49	4.33	5.67	6.67	6.48	DLF	SR 2284	5.67	6.67	6.00	5.59
PST	TX8-56	5.33	7.00	7.00	6.48	DLF	A12-2	6.33	5.67	5.67	5.59
NTR	AKB2313	4.67	4.33	5.67	6.48	DLF	A15-480	6.67	5.33	4.33	5.59
PST	K19-207	4.00	6.33	3.67	6.44	NTR	AKB2769	6.00	5.00	6.00	5.56
PST	K15-168	4.33	6.00	7.67	6.41	DLF	Fielder	6.00	4.67	5.33	5.52
NTR	AKB3548	4.33	6.00	5.00	6.41	DLF	A19-4	6.33	6.00	6.00	5.52
NTR	AKB3179	5.67	5.67	6.33	6.41	SS	NAI-19-181	6.00	5.67	6.00	5.52
PST	K17-187	5.67	5.67	6.00	6.41	SS	NAI-19-190 LS	5.33	6.67	7.00	5.48
PST	New Moon	4.67	8.00	4.67	6.37	PPG	A18-9	7.33	7.00	7.67	5.48
PST	K21-6	4.00	5.00	5.33	6.37	NTR	AKB2795	4.00	4.33	7.00	5.45
PST	K13-140	4.67	6.67	7.67	6.37	DLF	A17-4	5.33	5.67	6.67	5.45
NTR	Mallard	5.67	8.00	7.67	6.33	DLF	A12-1	5.33	5.33	5.67	5.41
NTR	AKB2543	5.33	6.00	5.67	6.33	NTR	Deja Blue	6.67	7.00	7.67	5.41
NTR	AKB3869	6.00	7.00	6.00	6.30	PST	K19-203	5.00	5.67	6.67	5.41
PST	T17-47	6.33	5.33	6.00	6.30	NTR	AKB3605	5.00	5.33	4.00	5.41
NTR	AKB3593	4.67	6.00	7.00	6.30	SS	NAI-19-188 LS	6.00	4.33	5.67	5.41
DLF	SR 2150	7.00	6.33	4.67	6.30	SS	NAI-19-83	6.33	6.00	5.33	5.33
PST	Desert Dream	6.00	7.67	5.67	6.26	SS	NAI-19-166	5.67	5.67	5.33	5.33
NTR	AKB3216	6.00	6.33	6.00	6.26	PPG	A20-12	5.33	6.00	7.00	5.30
NTR	AKB2949	5.33	6.00	7.67	6.22	SS	SEKB-4272	5.00	4.33	6.00	5.29
PPG	A19-1	6.67	5.33	5.67	6.15	NTR	AKB2733	4.33	4.67	3.33	5.29
PST	K18-197	4.67	6.00	6.00	6.11	PPG	A20-13	6.33	7.33	4.00	5.26
PST	T15-44	6.00	5.33	4.67	6.11	NAg	NAI-15-90	5.67	6.33	5.67	5.22
NAg	NAI-19-58	6.33	5.33	6.00	6.11	NAg	Shamrock	5.00	4.00	4.67	5.22
NAg	Jersey	6.00	4.00	5.33	6.11	PPG	A12-266	5.33	5.67	5.67	5.18
PST	K17-188AD	5.33	6.67	5.67	6.11	DLF	A15-8	5.67	7.00	6.00	5.15
PST	K19-204	3.67	5.67	6.67	6.08	PPG	A17-869	7.00	4.33	4.67	5.04
PST	Harvest Moon	7.00	7.00	7.00	6.08	DLF	Mercury	5.67	6.67	7.33	5.04
NTR	AKB1565	6.67	5.67	6.67	6.07	SS	Kelly	7.33	4.67	4.67	4.96
PPG	Bolt	7.33	5.67	5.33	6.07	NAg	NAI-19-179	7.00	4.33	4.33	4.93
SS	Isabel	7.00	6.67	1.33	6.04	SS	NAI-19-164	5.67	6.00	5.67	4.92
NTR	Tejas	6.00	4.33	5.67	6.04	NTR	Geronimo	6.00	3.67	4.00	4.89
NTR	AKB2836	4.33	6.00	6.33	6.04	SS	NAI-19-125	5.67	5.00	5.33	4.89
NTR	AKB3363	5.00	4.33	6.00	6.03	PPG	A20-10	5.00	5.33	6.67	4.85
PST	K15-163A	5.67	5.00	4.00	6.00	NAg	NAI-19-42	5.33	5.33	5.00	4.81
SS	Skye	5.33	6.67	5.33	5.96	NAg	NAI-19-64	7.67	3.33	4.00	4.78
NTR	AKB3208	4.33	5.67	5.33	5.96	NAg	NAI-17-4	4.67	4.67	6.33	4.67
NTR	Valley View	5.33	5.67	5.67	5.93	GOR	GO-KB20-1	5.67	3.67	2.33	4.29
PPG	A19-16	6.67	5.33	6.33	5.93	NAg	Kenblue	5.67	2.67	4.00	3.93
NTR	AKB3201	3.67	8.00	7.00	5.89						

2022 Average Establishment = (1 rating)

2022 Average Scalping = (1 rating) 2022 Average Stem Rust = (1 rating) 2022 Average Turf Quality = (9 ratings)



THE FOUNDATION OF EXCELLENCE

A research first approach of perfecting turfgrass performance.

Variety information

Description:

Rain Dance tall fescue was developed by Pure-Seed Testing, Inc. It is a dark green cultivar that was selected for salt tolerance. Rain Dance has shown excellent drought tolerance and summer turf performance. Rain Dance is tolerant to brown patch, gray leaf spot, net blotch, stem rust, and crown rust.

Applications:

Rain Dance is adapted for lawns, golf course roughs, cemeteries, parks, sod production, sports fields, roadsides and slope stabilization. Its drought tolerance makes Rain Dance especially well-suited for residential or commercial lawns and low-maintenance turf areas. RainDance performs well in sun or shade.

Geographical Adaption:

Rain Dance performs well in the Transition Zone and temperate climates. It is adapted to a wide range of soil types and pH. Recommended seeding rate is 5-8 lb/1000 ft2 (245-390 kg/ha). Fertilize at 3-5 lb N/1000 ft2/yr (145-245 kg/ha); mow at 1.5-3.0" (4-8 cm); irrigate deeply and infrequently.

PRODUCT FEATURES	
Brown Patch	● ● ● ● ●
Heat Tolerance	● ● ● ● ●
Wear Tolerance	● ● ● ● ●
Salt Tolerance	● ● ● ● ●
Drought Tolerance	● ● ● ● ●
Seeding Rate	5-8 lbs /1000sq. ft (245-390 kg/ha)

2010 CTBT Trial in Albany, OR (Cooperator Kenneth Hignight). Confidence intervals (95%) for the amount of moisture lost to evapotranspiration after irrigation is withheld before selections (10CTFA12 data set) reach 75, 50, and 25% green cover. Selections are ranked based on their ET<sub>50</sub> values.

Rank	Entry	ET <sub>75</sub>	ET <sub>50</sub>	ET <sub>25</sub>
1	Traverse	10.43 to 11.23	13.52 to 14.42	16.22 to 18.01
2	<b>RainDance</b>	<b>9.808 to 10.84</b>	<b>13.27 to 14.43</b>	<b>16.23 to 18.52</b>
3	IS-TF 219	10.13 to 10.58	13.02 to 13.42	15.69 to 16.47
4	Shenandoah III	9.968 to 10.98	12.60 to 13.42	14.75 to 16.33
5	PSG 82BPRH	10.07 to 10.90	12.59 to 13.24	14.73 to 15.97
6	PPG-TF 117	9.710 to 10.50	12.57 to 13.22	15.07 to 16.31
7	IS-TF 234C	9.425 to 10.75	12.34 to 13.43	14.64 to 16.73
8	PPG-TF 101	9.265 to 10.75	12.24 to 13.46	14.53 to 16.86
9	ATF1550	9.442 to 10.61	12.29 to 13.22	14.61 to 16.36
10	PSG 07-5	9.765 to 10.23	12.51 to 12.87	15.04 to 15.72
11	LW	9.399 to 10.39	12.27 to 13.04	14.68 to 16.13
12	IS-TF 217	9.137 to 10.23	12.20 to 13.07	14.76 to 16.42
13	Falcon IV	9.578 to 10.07	12.34 to 12.71	14.88 to 15.57
14	Mustang 4	9.531 to 10.50	12.12 to 12.83	14.29 to 15.59
15	ATF1549	9.516 to 9.919	12.30 to 12.60	14.90 to 15.46
16	ATF1614	9.100 to 10.17	11.98 to 12.78	14.39 to 15.86
17	IS-TF 197	9.774 to 10.31	12.19 to 12.58	14.38 to 15.06
18	PST-5LIV	9.297 to 10.15	12.03 to 12.65	14.39 to 15.52
19	Essential	9.453 to 10.09	12.07 to 12.53	14.42 to 15.25
20	PPG-TF 102	9.091 to 10.43	11.78 to 12.74	13.91 to 15.62
21	Inspiration	9.130 to 10.07	11.91 to 12.60	14.29 to 15.53
22	Spyder LS	9.265 to 10.14	11.90 to 12.54	14.18 to 15.29
23	Coronado TDH	9.043 to 10.09	11.81 to 12.57	14.14 to 15.49
24	ATF1491	9.449 to 9.899	12.02 to 12.34	14.41 to 14.97
25	PST-5MVD	9.215 to 9.631	12.03 to 12.34	14.67 to 15.22
26	Tarnation GT	8.921 to 9.448	11.98 to 12.38	14.82 to 15.54
27	Shenandoah Elite	9.370 to 10.11	11.89 to 12.41	14.11 to 15.02
28	IS-TF 223	9.154 to 10.15	11.79 to 12.50	14.02 to 15.26
29	PSG 8GRTR	9.359 to 9.987	11.89 to 12.33	14.16 to 14.93
30	Rhambler	9.303 to 10.36	11.73 to 12.46	13.73 to 14.97
31	ATF1547	9.448 to 9.911	11.90 to 12.22	14.16 to 14.71
32	STR 86QRH	9.366 to 9.755	11.92 to 12.20	14.32 to 14.80
33	ATF1568	9.095 to 10.17	11.65 to 12.40	13.78 to 15.06
34	KY-31	8.126 to 9.267	11.59 to 12.46	14.56 to 16.16
35	PPG-TF 106	8.868 to 9.812	11.69 to 12.37	14.12 to 15.31
36	Catalyst	9.018 to 9.523	11.82 to 12.18	14.40 to 15.04
37	6351	9.222 to 10.09	11.67 to 12.27	13.79 to 14.79
38	IS-TF 215	9.298 to 9.840	11.77 to 12.15	14.04 to 14.67
39	Raptor II	9.283 to 9.921	11.74 to 12.18	13.94 to 14.69
40	PST-5DVD-07	9.219 to 9.868	11.72 to 12.17	13.96 to 14.73
41	ATF1619	8.831 to 10.07	11.50 to 12.37	13.68 to 15.16
42	IS-TF 225	9.269 to 9.769	11.76 to 12.10	14.05 to 14.63
43	PPG-TF 115	9.096 to 9.717	11.71 to 12.14	14.07 to 14.82
44	PST-5SLV	9.446 to 9.939	11.76 to 12.10	13.89 to 14.44
45	ATF1548	8.824 to 9.454	11.68 to 12.13	14.27 to 15.06
46	Finelawn Xpress	9.203 to 9.993	11.62 to 12.16	13.73 to 14.62
47	PPG-TF 105	9.169 to 9.771	11.68 to 12.10	13.96 to 14.67
48	IS-TF 226	8.685 to 9.616	11.55 to 12.21	14.03 to 15.18
49	IS-TF 230B	9.143 to 9.960	11.59 to 12.16	13.73 to 14.66
50	FCE3	8.916 to 10.11	11.45 to 12.27	13.53 to 14.89



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Rank	Entry	ET <sub>75</sub>	ET <sub>50</sub>	ET <sub>25</sub>
51	PSG 709509	8.386 to 9.372	11.50 to 12.22	14.21 to 15.48
52	ATF1570	9.050 to 9.958	11.54 to 12.17	13.69 to 14.72
53	ATF1611	9.444 to 9.952	11.68 to 12.03	13.73 to 14.29
54	PST-5V4	9.009 to 9.830	11.57 to 12.14	13.81 to 14.76
55	IS-TF 227	8.939 to 9.664	11.56 to 12.06	13.89 to 14.74
56	PST-5AWT	9.264 to 9.887	11.60 to 12.03	13.70 to 14.39
57	PST-5YMY	9.316 to 9.632	11.69 to 11.91	13.95 to 14.31
58	PST-5DRP	8.807 to 9.375	11.51 to 11.90	13.98 to 14.65
59	ATF1567	9.040 to 10.03	11.35 to 12.02	13.31 to 14.37
60	PPG-TF 116	9.219 to 9.927	11.45 to 11.93	13.43 to 14.19
61	PSG 08-6	9.259 to 9.757	11.52 to 11.86	13.61 to 14.15
62	PSG 6008	8.958 to 9.797	11.40 to 11.97	13.53 to 14.46
63	Swagger	8.459 to 9.607	11.29 to 12.09	13.66 to 15.02
64	PST-5SXR	8.801 to 9.522	11.42 to 11.92	13.77 to 14.60
65	ATF1551	8.995 to 9.581	11.46 to 11.87	13.71 to 14.37
66	Crossfire 3	8.243 to 9.613	11.18 to 12.14	13.58 to 15.21
67	PSG 8308	8.842 to 9.327	11.49 to 11.82	13.95 to 14.51
68	Relentless	8.670 to 9.447	11.39 to 11.93	13.80 to 14.70
69	Sun Fire	8.975 to 9.713	11.40 to 11.90	13.55 to 14.36
70	PST-5DKB	8.871 to 9.596	11.37 to 11.87	13.60 to 14.41
71	ATF1621	9.121 to 9.636	11.42 to 11.77	13.54 to 14.09
72	Corona	9.189 to 9.798	11.39 to 11.80	13.38 to 14.02
73	Knox	8.930 to 9.470	11.40 to 11.77	13.67 to 14.26
74	Meridian	8.666 to 9.454	11.31 to 11.85	13.65 to 14.54
75	ATF1612	9.107 to 9.580	11.40 to 11.72	13.53 to 14.03
76	IS-TF 233C	8.917 to 9.648	11.31 to 11.81	13.44 to 14.23
77	Gazelle II	9.272 to 9.781	11.37 to 11.71	13.29 to 13.81
78	Cumberland	9.150 to 9.590	11.37 to 11.67	13.44 to 13.90
79	ATF1571	8.419 to 9.386	11.17 to 11.83	13.55 to 14.65
80	ATF1618	9.071 to 9.558	11.32 to 11.65	13.40 to 13.91
81	3rd Millennium	8.943 to 9.583	11.26 to 11.70	13.36 to 14.03
82	ATF1569	9.327 to 9.812	11.31 to 11.64	13.14 to 13.62
83	Firecracker LS	8.988 to 9.592	11.28 to 11.69	13.36 to 14.00
84	IS-TF 231C	8.237 to 9.475	11.05 to 11.90	13.39 to 14.80
85	PSG 07-9	8.826 to 9.564	11.21 to 11.71	13.34 to 14.12
86	Titanium LS	8.906 to 9.335	11.32 to 11.61	13.57 to 14.04
87	Bullseye	9.047 to 9.526	11.29 to 11.61	13.37 to 13.86
88	PST-5BGR	8.736 to 9.125	11.30 to 11.57	13.72 to 14.15
89	ATF1620	8.400 to 9.305	11.11 to 11.73	13.49 to 14.50
90	ATF1608	8.599 to 9.044	11.24 to 11.55	13.72 to 14.22
91	ATF1609	9.143 to 9.593	11.24 to 11.54	13.18 to 13.64
92	ATF1566	9.053 to 9.520	11.22 to 11.54	13.23 to 13.71
93	Rebel Exeda	8.521 to 9.158	11.14 to 11.57	13.52 to 14.22
94	Wolfpack II	8.868 to 9.463	11.15 to 11.55	13.22 to 13.84
95	ATF1613	8.537 to 9.146	11.12 to 11.54	13.49 to 14.15
96	IS-TF 224	8.723 to 9.271	11.07 to 11.44	13.22 to 13.79
97	PSG 8SP1	8.765 to 9.349	11.03 to 11.42	13.10 to 13.69
98	PSG 5908	8.452 to 9.252	10.92 to 11.47	13.12 to 13.96
99	Penn 1901	8.541 to 9.175	10.91 to 11.34	13.07 to 13.71
100	PSG3905	8.063 to 8.978	10.61 to 11.24	12.86 to 13.80
101	Falcon V	8.274 to 9.121	10.63 to 11.20	12.71 to 13.55

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Rank	Entry	ET <sub>75</sub>	ET <sub>50</sub>	ET <sub>25</sub>
102	Wolfpack III	8.348 to 8.849	10.46 to 10.80	12.42 to 12.91
103	ATF1610	7.241 to 9.335	9.542 to 10.98	11.24 to 13.23
104	PST-5SXD	7.188 to 8.973	9.313 to 10.55	10.95 to 12.63

2011 mean percent green cover ratings for entries in a tall fescue turf trial seeded fall of 2010 in a rain-out shelter near Rolesville, NC, maintained at a 2.0" mowing height and evaluated using digital image analysis after irrigation was withheld beginning 11 August.

Entry	08/11	09/16	11/03	11/28	12/23	01/10
5YA	88.9	88.1	89.3	85.1	82.4	76.5
Wolfpack III	90.6	88.4	92.9	84.8	77.8	74.0
5EVR	91.2	86.0	83.7	79.6	73.6	70.2
Wolfpack II, Faith, Gazelle II	87.1	85.2	88.3	81.1	78.9	70.1
5DKB-N	89.2	87.8	88.5	80.8	76.2	69.6
Coronado TDH, Dynamic II, Gazelle II, Right KB	82.8	80.1	85.6	79.5	77.0	69.5
Virtue II	87.5	85.9	88.3	82.0	76.4	68.1
5MVD	92.7	85.3	86.7	80.7	74.3	68.0
Coronado TDH, Dynamic II, 5DVD, Green Star KB	88.2	86.1	87.9	80.9	75.0	67.6
Coronado TDH, Dynamic II, Relentless, Thermal Blue KB	88.9	86.5	86.5	79.8	76.0	67.6
Wolfpack II, Faith, Coyote II	82.9	84.7	86.3	77.5	74.2	67.1
Knox, 5SXR, Wolfpack III, Green Star KB	87.2	80.6	79.5	76.2	72.8	67.0
Swagger	91.5	87.1	85.9	79.2	74.5	66.7
Tar Heel II	87.1	79.9	85.0	81.6	73.3	66.6
<b>RainDance</b>	<b>87.5</b>	<b>78.6</b>	<b>83.9</b>	<b>77.0</b>	<b>73.8</b>	<b>66.2</b>
5YMY, Relentless, 5Y8	91.9	85.2	86.4	79.4	76.0	66.1
Faith	88.9	79.0	81.8	75.0	71.5	65.8
MicroClover 2 (85% Tar Heel II; 10% Thermal Blue KB; 5% Microclover)	89.8	83.5	85.4	79.8	74.7	65.6
Inspiration	81.7	81.4	83.9	77.0	73.2	65.1
Coyote II, Wendy Jean FF, Avalanche KB	83.2	78.5	80.8	77.3	73.0	64.9
Scotts Turf Builder HT Blue (15% ea. Silverado II, Dynasty; 14% Greenkeeper WAF, 4% Thermal Blue KB)	90.8	80.9	81.5	75.4	71.1	64.9
Endeavor II, Tar Heel II, Wolfpack II, Green Star KB	85.1	76.0	76.1	75.1	74.0	64.5
Falcon V	90.9	82.4	82.0	75.9	70.7	64.4
5V4	85.7	83.6	85.1	76.1	72.4	63.8
Coronado TDH, Dynamic II, 5DVD, Thermal Blue KB	86.7	80.6	82.1	76.6	68.5	62.6
5A4S	83.8	80.0	77.1	71.7	66.5	62.4
5YMY	91.0	77.8	80.8	76.5	72.4	62.1
Coronado TDH, Dynamic II, Relentless	85.4	74.8	78.3	72.1	67.6	62.1
Pennington Smart Seed TF (59% Justice; 20% ea. Greystone, Virtue II)	83.1	74.3	77.1	73.1	70.3	62.0
5DRP	90.0	81.1	78.9	73.5	67.6	61.4
90% Tar Heel II; 10% Thermal Blue KB	90.0	81.4	78.7	71.1	68.7	61.3
Relentless	89.3	83.8	86.0	76.9	71.2	60.7
Coronado TDH, Endeavor II, Tar Heel II	87.8	79.5	78.7	72.8	66.6	60.7
Coronado TDH, Tar Heel II, 5DVD, Relentless	87.3	78.8	78.7	74.2	68.7	60.6
The Rebels (44% Rebel Advance, 29% Rebel IV, 25% Brockton)	85.2	77.9	75.1	68.5	64.0	59.4
Scotts Turf Builder TF Mix (14% ea. Coyote II, Greenkeeper WAF; 10% Tar Heel II, 9% Silverado II)	88.0	75.5	75.7	69.2	66.9	58.4
Pennington TF (39% ea. Greystone, Rebel Exeda; 19% Penn 1901)	81.3	71.1	74.6	70.6	66.1	58.2
Greenkeeper WAF, Coyote II, Wendy Jean FF	87.1	74.8	75.1	72.0	65.7	57.9
5DVD	86.2	73.4	73.3	65.8	66.0	57.8
Sun Fire	75.8	71.1	74.6	71.2	66.9	57.8
5SXR	92.3	78.5	78.4	71.0	64.1	56.9



2011 mean percent green cover ratings for entries in a tall fescue turf trial seeded fall of 2010 in a rain-out shelter near Rolesville, NC, maintained at a 2.0" mowing height and evaluated using digital image analysis after irrigation was withheld beginning 11 August (Cont'd).

Entry	08/11	09/16	11/03	11/28	12/23	01/10
Endeavor II, Tar Heel II, Wolfpack II, Thermal Blue KB	89.0	71.7	67.4	63.5	61.1	56.1
5BGR	90.8	74.7	75.7	66.8	61.6	55.9
Southern Gold	81.1	73.7	74.9	68.3	62.1	55.9
Vigoro RTF (29% Barlexas II, 25% TF-66, 24% Barrera, 10% Labarinth, 9% Barlexas)	84.4	77.7	75.6	71.5	65.3	55.8
Pennington Smart Seed TF/KB (50% Justice; 20% ea. Greystone, Penn 1901; 10% Ridgeline KB)	86.2	66.6	65.3	65.7	59.4	55.1
Knox	85.2	75.3	69.5	64.4	58.8	54.2
Coronado TDH, Dynamic II, Relentless, Green Star KB	89.1	72.8	67.0	63.8	59.3	52.8
Endeavor II	88.7	80.3	85.4	72.6	66.1	52.8
Coronado TDH	88.2	76.3	77.6	65.7	63.2	51.1
Endeavor II, Tar Heel II, Wolfpack II	86.0	70.2	66.7	61.8	56.9	50.8
Tarnation GT	81.4	66.6	64.2	60.7	57.7	50.7
5AWT	87.5	76.7	74.7	65.1	57.8	50.5
Coronado TDH, Dynamic II, 5DVD	85.8	72.9	68.8	60.3	56.3	49.2
Kentucky 31	86.5	67.5	70.6	64.7	57.1	47.5
MicroClover 1 (80% Tar Heel II; 10% ea. Thermal Blue KB, Microclover)	89.7	85.7	82.3	74.5	61.6	47.4
<b>LSD (0.05)</b>	<b>6.5</b>	<b>14.4</b>	<b>15.8</b>	<b>14.7</b>	<b>16.0</b>	<b>16.1</b>
<b>CV (%)</b>	<b>4.6</b>	<b>11.2</b>	<b>12.3</b>	<b>12.4</b>	<b>14.4</b>	<b>16.3</b>

Mowing height = 2.0"; 3 lb N/1000 ft<sup>2</sup> applied during 2011; fungicides applied preventatively

2011 mean percent green cover ratings for entries in a tall fescue trial seeded fall of 2010 (Blk 9) in a rain-out shelter near Hubbard, OR.

Entry	% Green Cover*		
	05 Aug	12 Aug	22 Aug
<b>RainDance</b>	<b>95.7</b>	<b>96.1</b>	<b>82.9</b>
32% ea. Knox, Wolfpack III; 31% 5SXR; 5% Right	86.4	76.2	<b>39.3</b>
33.3% ea. 5YMY, Relentless, 5Y8	83.2	76.0	<b>44.5</b>
30% ea. Coronado TDH, Tar Heel II; 20% ea. 5DVD, Relentless	94.7	93.0	<b>74.0</b>
70% Coyote II; 16% Wendy Jean; 14% Avalanche	92.9	76.0	<b>60.7</b>
32% ea. Wolfpack II, 32% Coyote II; 31% Faith; 5% Green Star	83.7	67.7	<b>44.7</b>
The Rebels (44% Rebel Advance, 29% Rebel IV, 25% Brockton)	84.8	75.2	<b>50.0</b>
30% ea. Coronado TDH, Tar Heel II; 28% Gazelle II; 12% Shademaster III	87.0	80.8	<b>53.0</b>
30% ea. Greenkeeper WAF, Fidelity; 28% Coyote II; 12% Wendy Jean	77.3	65.3	<b>38.5</b>
32% ea. Endeavor II, Wolfpack II; 31% Tar Heel II; 5% Thermal Blue	85.7	76.9	<b>55.5</b>
32% ea. Coronado TDH, Gazelle II; 31% Dynamic II; 5% Right	80.7	73.0	<b>40.8</b>
33.3% ea. Coyote II, Faith, Matador GT	87.4	80.7	<b>63.1</b>
33% ea. Endeavor II, Tar Heel II, Wolfpack II	92.0	87.1	<b>67.9</b>
Relentless	86.7	77.3	<b>61.1</b>
PST-5DRP	82.2	82.3	<b>55.9</b>
PST-5YMY	93.5	93.4	<b>55.0</b>
Wolfpack III	87.3	82.2	<b>51.7</b>
Sun Fire	75.6	72.2	<b>51.3</b>
PST-5SXD	82.5	73.4	<b>48.4</b>
PST-5SXR	80.3	71.6	<b>48.3</b>
Knox	78.4	74.6	<b>47.6</b>
Southern Gold	93.0	86.9	<b>76.6</b>
Pennington Smart Seed TF/KB (50% Justice; 20% ea. Greystone, Penn 1901; 10% Ridgeline KB)	91.6	89.2	<b>74.0</b>
Pennington Smart Seed TF (59% Justice; 20% ea. Greystone, Virtue II)	85.3	85.1	<b>57.0</b>
Scotts Turf Builder HT Blue (15% ea. Silverado II, Dynasty; 14% Greenkeeper WAF, 4% Thermal Blue KB)	87.2	77.4	<b>53.8</b>
Inspiration	87.1	80.1	<b>52.4</b>
Coronado TDH	85.8	66.6	<b>50.9</b>
Scotts Turf Builder TF Mix (14% ea. Coyote II, Greenkeeper WAF; 10% Tar Heel II, 9% Silverado II)	90.6	79.7	<b>50.2</b>
Vigoro RTF (29% Barlexas II, 25% TF-66, 24% Barrera, 10% Labarinth, 9% Barlexas)	80.0	69.0	<b>44.7</b>
Tar Heel II	82.7	69.1	<b>44.1</b>
<b>LSD (0.06)</b>	<b>14.3</b>	<b>18.9</b>	<b>29.6</b>
<b>CV (%)</b>	<b>10.2</b>	<b>14.8</b>	<b>33.2</b>

\*evaluated using digital image analysis

<sup>1</sup>9 = ideal



## THE FOUNDATION OF EXCELLENCE

A research first approach of perfecting turfgrass performance.

### Variety information

**Description:**

Salttillo tall fescue was developed by Pure-Seed Testing, Inc. It is a dark green cultivar with excellent summer turf performance. Salttillo was selected for salt tolerance and brown patch resistance. Salttillo has very good heat tolerance and resistance to brown patch, gray leaf spot, net blotch, stem rust, and crown rust..

**Applications:**

Salttillo is adapted for lawns, golf course roughs, cemeteries, parks, sod production, sports fields, roadsides and slope stabilization. Its drought tolerance makes Salttillo especially well-suited for residential or commercial lawns and low-maintenance turf areas. Salttillo performs well in sun or shade

**Geographical Adaption:**

Salttillo performs well in the Transition Zone and temperate climates. It is adapted to a wide range of soil types and pH. Recommended seeding rate is 5-8 lb/1000 ft<sup>2</sup> (245-390 kg/ha). Fertilize at 3-5 lb N/1000 ft<sup>2</sup>/yr (145-245 kg/ha); mow at 1.5-3.0" (4-8 cm); irrigate deeply and infrequently.

#### PRODUCT FEATURES

Brown Patch	● ● ● ● ●
Heat Tolerance	● ● ● ● ●
Wear Tolerance	● ● ● ● ●
Salt Tolerance	● ● ● ● ●
Drought Tolerance	● ● ● ● ●
Seeding Rate	5-8 lbs /1000sq. ft (245-390 kg/ha)

# Data and Information Package for Saltillo Tall Fescue

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\*Additional NTEP data are available at [www.ntep.org](http://www.ntep.org)

Table 1. Brief description and endophyte content of Saltillo tall fescue.

<b>Description</b>	Selected for salt tolerance & summer turf performance
<b>Endophyte Content</b>	80%
	Saltillo is TWCA qualified ( <a href="http://www.tgwca.org">http://www.tgwca.org</a> )

Table 2. 2013 mean turf quality ratings of tall fescue cultivars grown at 11 locations in the US (LPI Group 1).

Entry	CT1	NC1	GA1	MS1	TN1	IL1	IA1	MO1	AR1	OK1	NE1	Mean
PPG-TF-157	6.4 <sup>1</sup>	5.7	5.6	6.7	7.9	6.0	6.4	6.5	7.6	6.2	6.1	6.5
ZW 44	6.4	5.6	5.7	6.7	7.9	6.0	6.2	6.7	7.7	5.5	6.2	6.4
PPG-TF-152	6.5	5.6	5.5	6.5	7.7	6.0	6.3	6.5	7.6	6.1	6.1	6.4
Pick W43	6.4	5.6	5.6	6.6	7.8	6.0	6.3	6.5	7.6	6.0	6.1	6.4
U43	6.4	5.6	5.6	6.6	7.9	6.0	6.2	6.6	7.7	5.6	6.2	6.4
F711	6.4	5.6	5.5	6.6	7.8	5.9	6.4	6.4	7.6	6.2	6.1	6.4
SRX-TPC	6.3	5.6	5.6	6.7	7.9	5.9	6.3	6.5	7.6	5.9	6.1	6.4
K12-MCD	6.1	5.5	5.5	6.7	7.9	5.8	6.5	6.3	7.5	6.6	6.0	6.4
PPG-TF-137	6.3	5.6	5.6	6.7	7.9	5.9	6.3	6.5	7.6	5.8	6.1	6.4
CCR2	6.4	5.6	5.6	6.6	7.8	6.0	6.3	6.6	7.6	5.8	6.2	6.4
PPG-TF-105	6.4	5.6	5.5	6.6	7.8	5.9	6.3	6.5	7.6	5.9	6.1	6.4
Terrano	6.1	5.5	5.5	6.6	7.8	5.8	6.4	6.4	7.5	6.5	6.0	6.4
MET-3	6.4	5.6	5.5	6.5	7.7	5.9	6.3	6.4	7.6	6.2	6.1	6.4
PST-5EV2	6.3	5.5	5.3	6.3	7.5	5.7	6.4	6.1	7.4	6.8	5.8	6.3
Meridian	6.2	5.5	5.4	6.5	7.6	5.7	6.3	6.2	7.4	6.5	5.9	6.3
W45	6.4	5.6	5.5	6.6	7.8	5.9	6.2	6.5	7.6	5.6	6.1	6.3
PPG-TF-156	6.3	5.5	5.6	6.6	7.8	5.9	6.2	6.5	7.6	5.6	6.1	6.3
PPG-TF-150	6.4	5.6	5.4	6.4	7.6	5.9	6.2	6.4	7.6	6.0	6.1	6.3
MET 1	6.3	5.5	5.5	6.5	7.7	5.9	6.2	6.5	7.6	5.8	6.1	6.3
PPG-TF-172	6.3	5.5	5.4	6.5	7.7	5.8	6.3	6.4	7.5	6.1	6.0	6.3
Rhambler 2 SRP	6.3	5.5	5.5	6.5	7.7	5.9	6.2	6.4	7.5	5.9	6.1	6.3
B23	6.3	5.5	5.6	6.6	7.8	5.9	6.1	6.6	7.6	5.4	6.1	6.3
PPG-TF-151	6.2	5.5	5.4	6.5	7.7	5.8	6.3	6.4	7.5	6.1	6.0	6.3
Bizem	6.2	5.5	5.5	6.6	7.8	5.8	6.2	6.4	7.5	5.8	6.0	6.3
Grande 3	6.1	5.5	5.4	6.6	7.7	5.8	6.3	6.3	7.4	6.2	5.9	6.3
Fesnova	6.2	5.5	5.5	6.6	7.8	5.8	6.2	6.5	7.5	5.7	6.1	6.3
Regenerate	6.4	5.5	5.6	6.6	7.8	6.0	6.0	6.6	7.6	5.0	6.2	6.3
LTP-F5DPDR	6.2	5.5	5.4	6.5	7.7	5.8	6.2	6.4	7.5	6.1	6.0	6.3
LTP-FSD	6.1	5.5	5.4	6.5	7.7	5.8	6.3	6.3	7.4	6.2	5.9	6.3
PPG-TF-170	6.3	5.5	5.4	6.5	7.7	5.8	6.2	6.4	7.5	5.8	6.0	6.3
RZ2	6.4	5.5	5.3	6.3	7.5	5.8	6.3	6.3	7.4	6.3	5.9	6.3
PST-5BP0	6.0	5.5	5.3	6.4	7.6	5.6	6.5	6.1	7.3	7.1	5.8	6.3
IS-TF 289	6.3	5.5	5.4	6.5	7.7	5.8	6.1	6.4	7.5	5.6	6.0	6.3
W41	6.2	5.4	5.4	6.5	7.7	5.8	6.2	6.4	7.4	5.9	6.0	6.3
GTO	6.3	5.5	5.4	6.4	7.6	5.8	6.2	6.3	7.4	6.0	6.0	6.3
IS-TF 310 SEL	6.0	5.4	5.5	6.7	7.9	5.8	6.1	6.5	7.5	5.4	6.0	6.3
Temptation	6.0	5.4	5.4	6.6	7.8	5.7	6.3	6.3	7.4	6.2	5.9	6.3
ATF 1704	6.1	5.4	5.3	6.4	7.6	5.7	6.3	6.2	7.3	6.4	5.9	6.3
Saltillo	6.0	5.4	5.3	6.4	7.6	5.6	6.3	6.1	7.3	6.4	5.8	6.2
PPG-TF-135	6.2	5.4	5.4	6.5	7.7	5.8	6.2	6.3	7.4	5.9	6.0	6.2

Table 2. 2013 mean turf quality ratings of tall fescue cultivars grown at 11 locations in the US (LPI Group 1) [Cont'd].

Entry	CT1	NC1	GA1	MS1	TN1	IL1	IA1	MO1	AR1	OK1	NE1	Mean
LTP-TWUU	6.3	5.5	5.4	6.4	7.6	5.8	6.2	6.4	7.5	5.8	6.0	6.2
PPG-TF-169	6.0	5.4	5.4	6.5	7.7	5.7	6.2	6.3	7.4	6.1	5.9	6.2
IS-TF 330	6.1	5.4	5.4	6.5	7.7	5.8	6.1	6.4	7.4	5.6	6.0	6.2
IS-TF 307 SEL	6.2	5.4	5.3	6.4	7.6	5.8	6.2	6.3	7.4	6.0	5.9	6.2
PST-5BRK	6.0	5.4	5.4	6.5	7.7	5.7	6.3	6.2	7.3	6.3	5.8	6.2
IS-TF 291	6.2	5.4	5.4	6.5	7.7	5.8	6.1	6.4	7.5	5.6	6.0	6.2
Catalyst	5.9	5.3	5.5	6.6	7.8	5.7	6.2	6.4	7.4	5.7	5.9	6.2
PSG-GSD	6.0	5.4	5.3	6.4	7.6	5.6	6.3	6.1	7.3	6.5	5.8	6.2
U45	6.2	5.4	5.4	6.4	7.6	5.8	6.1	6.4	7.4	5.6	6.0	6.2
IS-TF 276 M2	5.9	5.3	5.4	6.6	7.7	5.6	6.2	6.2	7.3	6.2	5.8	6.2
IS-TF 272	5.9	5.3	5.4	6.6	7.8	5.7	6.2	6.3	7.3	5.8	5.9	6.2
PSG-PO1	6.0	5.3	5.5	6.6	7.8	5.7	6.1	6.4	7.4	5.5	6.0	6.2
IS-TF 305 SEL	6.1	5.4	5.3	6.4	7.6	5.7	6.2	6.2	7.3	6.1	5.9	6.2
DZ1	6.1	5.4	5.4	6.5	7.7	5.7	6.1	6.4	7.4	5.6	5.9	6.2
PPG-TF-138	5.9	5.3	5.5	6.6	7.8	5.7	6.1	6.4	7.4	5.6	5.9	6.2
ATF 1612	6.3	5.4	5.3	6.3	7.5	5.8	6.1	6.3	7.4	5.9	5.9	6.2
TD1	6.0	5.3	5.4	6.6	7.8	5.7	6.1	6.4	7.4	5.6	5.9	6.2
Faith	6.1	5.4	5.4	6.4	7.6	5.7	6.1	6.3	7.4	5.7	5.9	6.2
Falcon V	6.0	5.4	5.4	6.5	7.7	5.7	6.1	6.3	7.4	5.8	5.9	6.2
PSG-WE1	6.2	5.4	5.4	6.4	7.6	5.8	6.1	6.3	7.4	5.6	5.9	6.2
Caesar	5.9	5.3	5.4	6.5	7.7	5.6	6.1	6.3	7.3	5.9	5.9	6.2
Hot Rod	6.1	5.4	5.4	6.4	7.6	5.7	6.1	6.3	7.4	5.6	5.9	6.2
Falcon IV	5.9	5.3	5.3	6.5	7.6	5.6	6.2	6.2	7.3	6.3	5.8	6.2
IS-TF-287	5.9	5.3	5.4	6.6	7.7	5.7	6.1	6.3	7.3	5.6	5.9	6.2
IS-TF 285	6.0	5.3	5.5	6.6	7.8	5.7	6.0	6.4	7.4	5.2	6.0	6.2
RainDance	5.9	5.3	5.2	6.4	7.5	5.5	6.3	6.0	7.2	6.8	5.7	6.2
PPG-TF-115	5.8	5.3	5.4	6.5	7.7	5.6	6.2	6.2	7.3	5.9	5.8	6.2
Hemi	6.2	5.4	5.3	6.4	7.6	5.7	6.0	6.3	7.4	5.5	5.9	6.2
ATF 1736	6.0	5.3	5.3	6.5	7.6	5.6	6.1	6.2	7.3	5.9	5.8	6.2
Swagger	5.9	5.3	5.3	6.5	7.7	5.6	6.2	6.2	7.3	6.0	5.8	6.1
ATF 1754	6.0	5.3	5.3	6.4	7.6	5.6	6.1	6.2	7.3	5.8	5.8	6.1
IS-TF 282 M2	6.0	5.3	5.3	6.5	7.7	5.6	6.1	6.3	7.3	5.6	5.9	6.1
IS-TF 284 M2	6.1	5.3	5.3	6.3	7.5	5.7	6.1	6.2	7.3	5.9	5.8	6.1
IS-TF 311	6.1	5.3	5.3	6.3	7.5	5.7	6.1	6.2	7.3	5.8	5.8	6.1
PST-5MVD	5.9	5.3	5.3	6.5	7.6	5.6	6.1	6.2	7.2	5.9	5.8	6.1
MET 6 SEL	6.1	5.3	5.2	6.3	7.5	5.6	6.1	6.2	7.3	5.9	5.8	6.1
Inspiration	5.7	5.2	5.3	6.5	7.6	5.5	6.2	6.1	7.1	6.4	5.7	6.1
PPG-TF-139	6.1	5.3	5.3	6.3	7.5	5.6	6.0	6.2	7.3	5.7	5.8	6.1
IS-TF 269 SEL	6.0	5.3	5.3	6.4	7.6	5.6	6.0	6.3	7.3	5.4	5.9	6.1
Frontline	5.8	5.2	5.3	6.4	7.6	5.5	6.2	6.1	7.2	6.2	5.7	6.1

Table 2. 2013 mean turf quality ratings of tall fescue cultivars grown at 11 locations in the US (LPI Group 1) [Cont'd].

Entry	CT1	NC1	GA1	MS1	TN1	IL1	IA1	MO1	AR1	OK1	NE1	Mean
PPG-TF-145	5.8	5.2	5.4	6.5	7.7	5.6	6.1	6.2	7.3	5.6	5.8	6.1
PST-5EX2	5.7	5.2	5.2	6.4	7.6	5.4	6.2	6.0	7.1	6.5	5.6	6.1
GO-DFR	5.9	5.3	5.3	6.4	7.6	5.6	6.1	6.2	7.2	5.8	5.8	6.1
IS-TF 308 SEL	5.9	5.3	5.3	6.4	7.6	5.6	6.0	6.3	7.3	5.5	5.8	6.1
DB1	5.8	5.2	5.5	6.6	7.8	5.6	5.9	6.4	7.3	4.9	5.9	6.1
Bullseye	6.1	5.3	5.3	6.3	7.5	5.7	5.9	6.3	7.3	5.3	5.9	6.1
K12-05	5.7	5.2	5.4	6.6	7.8	5.5	6.0	6.3	7.2	5.4	5.8	6.1
PSG-8BP2	5.8	5.2	5.2	6.3	7.5	5.5	6.1	6.0	7.1	6.3	5.7	6.1
JS 818	5.8	5.2	5.2	6.4	7.6	5.5	6.0	6.1	7.2	5.8	5.7	6.1
Firebird 2	6.1	5.3	5.3	6.3	7.5	5.6	5.9	6.3	7.3	5.3	5.9	6.1
PPG-TF-148	5.8	5.2	5.3	6.5	7.7	5.6	5.9	6.3	7.3	5.1	5.9	6.0
T31	5.9	5.2	5.2	6.3	7.5	5.6	6.0	6.2	7.2	5.6	5.8	6.0
PST-5DZP	5.8	5.2	5.2	6.4	7.6	5.5	6.0	6.1	7.2	5.7	5.7	6.0
JS 916	5.9	5.2	5.2	6.3	7.4	5.5	5.9	6.1	7.2	5.7	5.7	6.0
PPG-TF-142	5.9	5.2	5.1	6.2	7.4	5.5	6.0	6.0	7.1	5.8	5.7	6.0
Aquaduct	5.6	5.1	5.1	6.3	7.4	5.3	6.2	5.8	7.0	6.6	5.5	6.0
BAR FA 121089	5.5	5.0	5.1	6.4	7.5	5.3	6.0	5.9	7.0	6.0	5.5	5.9
JS 825	5.5	5.0	5.1	6.3	7.5	5.3	6.0	5.9	6.9	6.2	5.5	5.9
PSG-TT4	5.6	5.0	5.1	6.2	7.4	5.3	5.9	5.9	7.0	5.9	5.5	5.9
RAD-TF-89	5.8	5.0	5.3	6.4	7.6	5.5	5.6	6.3	7.2	4.4	5.8	5.9
JS 809	5.5	5.0	5.1	6.3	7.5	5.3	5.9	6.0	7.0	5.6	5.5	5.9
BAR FA 121095	5.6	5.0	5.1	6.2	7.4	5.4	5.8	6.0	7.0	5.5	5.6	5.9
JS 819	5.5	5.0	5.2	6.4	7.5	5.3	5.8	6.0	7.0	5.4	5.6	5.9
RAD-TF-88	5.6	5.0	5.3	6.4	7.6	5.5	5.6	6.3	7.2	4.4	5.8	5.9
RAD-TF-92	5.6	5.0	5.2	6.3	7.5	5.4	5.6	6.2	7.1	4.5	5.7	5.9
BURL TF-69	5.8	5.0	5.1	6.2	7.4	5.4	5.7	6.1	7.1	4.9	5.7	5.8
Warhawk	5.1	4.8	5.1	6.4	7.6	5.1	5.8	5.9	6.9	5.4	5.5	5.8
RAD-TF-83	5.4	4.9	5.2	6.4	7.6	5.3	5.6	6.2	7.0	4.5	5.6	5.8
204 RES. BLK4	5.3	4.8	5.1	6.3	7.5	5.2	5.6	6.0	6.9	4.8	5.5	5.7
BAR FA 121091	5.3	4.8	4.9	6.1	7.3	5.1	5.8	5.7	6.8	5.8	5.3	5.7
Annihilator Ledebor	5.1	4.7	5.1	6.4	7.6	5.1	5.6	6.0	6.8	4.9	5.5	5.7
BAR FA 120878	5.1	4.7	4.7	5.9	7.1	4.8	5.9	5.4	6.5	6.6	5.0	5.6
K12-13	5.1	4.6	5.0	6.2	7.4	5.0	5.5	5.8	6.7	4.8	5.3	5.6
COMP. RES. SST	5.1	4.6	5.0	6.2	7.4	5.0	5.3	5.9	6.8	4.1	5.4	5.5
Marauder	5.0	4.5	4.9	6.1	7.3	4.9	5.4	5.8	6.7	4.5	5.3	5.5
Kentucky 31	4.2	3.8	3.5	4.7	5.9	3.8	5.2	4.1	5.4	6.9	3.8	4.7
<b>LSD (0.05)</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
<b>CV (%)</b>	<b>8.1</b>	<b>9.1</b>	<b>9.1</b>	<b>7.5</b>	<b>6.3</b>	<b>8.6</b>	<b>8.0</b>	<b>0.8</b>	<b>6.6</b>	<b>8.4</b>	<b>8.3</b>	<b>7.9</b>

Entries within this table are ordered by the overall mean and have similar turf quality performances in all test locations included in this LPI group. If your state is not represented, then choose a LPI group that contains a location and management similar to your planting conditions. For more information on LPI, go to [www.ntep.org/lpi\\_q&a.pdf](http://www.ntep.org/lpi_q&a.pdf); 19 = ideal

Table 3. 2013 mean turf performance ratings of tall fescue cultivars grown under shade at Carbondale, IL.

Entry	Seedling Vigor	% Cover Summer	Turf Quality									
			Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Mean
PST-5EV2	7.3 <sup>1</sup>	81.3	4.3 <sup>1</sup>	5.3	6.3	7.0	7.7	8.0	8.0	8.3	7.3	6.9
PPG-TF-152	6.7	85.7	4.0	5.0	5.7	7.7	7.3	8.0	8.3	8.7	7.7	6.9
SRX-TPC	6.7	76.7	4.7	6.3	7.3	7.0	7.3	7.0	7.3	7.7	6.7	6.8
LTP-TWUU	7.0	74.3	4.0	6.0	7.7	7.7	6.3	7.0	7.3	7.3	6.7	6.7
PPG-TF-170	7.3	77.3	4.3	5.7	6.7	8.0	7.0	7.0	7.3	7.3	6.7	6.7
PSG-WE1	7.0	76.7	4.0	6.0	7.3	7.0	7.7	7.0	7.3	7.7	6.0	6.7
U43	5.7	80.0	4.0	5.3	6.3	7.0	8.0	7.3	7.7	8.0	7.0	6.7
Grande 3	8.0	79.3	4.3	6.0	8.0	7.0	6.0	6.7	7.0	7.7	6.3	6.6
Rhambler 2 SRP	6.7	83.3	4.0	5.3	6.3	7.3	7.0	7.3	7.7	7.7	6.3	6.6
MET 6 SEL	7.3	74.3	4.0	3.3	6.3	7.0	8.3	7.0	7.3	8.0	7.7	6.6
U45	6.3	83.3	3.3	4.3	5.3	7.0	7.7	7.7	8.3	8.7	7.3	6.6
W45	7.3	74.7	4.3	6.3	7.7	8.0	6.7	6.7	7.0	7.0	6.0	6.6
Bizem	5.7	75.0	4.0	5.0	5.3	7.0	8.7	7.0	7.0	7.7	7.0	6.5
RZ2	6.3	85.0	3.7	5.0	6.7	7.0	7.7	7.0	7.3	7.3	6.7	6.5
MET 1	7.3	73.7	4.0	5.7	7.3	7.7	6.0	6.7	7.0	7.0	6.0	6.4
MET-3	7.0	74.3	3.3	4.7	6.0	6.0	8.0	7.3	7.3	7.7	7.3	6.4
Pick W43	7.3	78.0	4.0	5.0	6.0	7.7	6.7	6.7	7.3	7.7	7.0	6.4
PPG-TF-105	8.0	74.3	4.3	5.7	7.3	7.7	6.0	6.7	6.7	6.7	6.3	6.4
PPG-TF-115	7.7	76.7	4.3	5.0	6.3	7.3	7.0	7.3	7.0	6.7	7.0	6.4
PPG-TF-151	6.7	76.7	3.7	5.0	6.0	7.7	7.7	7.0	7.0	7.0	6.3	6.4
ZW 44	7.3	73.3	4.3	6.0	7.3	7.0	6.3	6.3	6.3	7.0	7.0	6.4
PPG-TF-135	5.3	87.7	3.0	4.0	5.0	6.3	7.3	7.3	8.0	8.3	7.3	6.3
Hot Rod	7.0	74.7	3.3	4.3	5.3	6.3	8.0	6.0	7.3	8.0	7.0	6.2
IS-TF 310 SEL	6.7	67.3	4.3	5.7	6.7	7.0	7.7	6.3	6.7	6.3	5.3	6.2
PPG-TF-137	8.0	67.0	4.0	5.7	7.3	8.0	6.0	6.0	6.0	6.3	6.3	6.2
PPG-TF-172	6.7	82.7	4.0	4.7	5.7	7.7	7.7	6.3	6.7	7.3	5.7	6.2
<b>Saltillo</b>	<b>6.7</b>	<b>78.3</b>	<b>3.7</b>	<b>5.0</b>	<b>5.3</b>	<b>6.3</b>	<b>7.7</b>	<b>7.3</b>	<b>7.0</b>	<b>7.0</b>	<b>5.7</b>	<b>6.1</b>
Meridian	7.0	82.3	3.7	4.7	6.0	6.3	7.3	7.0	7.0	6.7	6.0	6.1
ATF 1704	7.0	70.7	4.0	5.7	7.3	7.3	6.7	6.3	6.3	6.0	5.7	6.1
ATF 1754	7.7	71.3	4.3	6.0	7.3	7.7	7.7	5.7	5.7	5.3	5.7	6.1
B23	7.3	77.7	3.7	4.7	6.0	7.0	6.7	6.7	6.7	6.7	6.7	6.1
Catalyst	8.3	71.0	5.0	6.0	7.0	7.0	5.3	6.3	6.3	6.3	5.3	6.1
Falcon V	7.0	75.3	4.7	5.7	6.7	6.7	6.0	6.7	6.7	6.3	5.3	6.1
Fesnova	6.0	61.7	4.3	5.3	6.3	7.3	6.3	5.7	6.7	7.3	6.0	6.1
LTP-FSD	7.0	74.3	4.0	5.3	6.3	6.7	6.3	6.7	6.7	6.7	6.3	6.1
PPG-TF-156	7.0	74.0	3.3	4.0	4.7	6.7	7.0	7.0	7.3	8.0	7.3	6.1
PPG-TF-169	8.0	68.7	4.7	6.0	8.0	6.3	6.0	6.0	6.0	6.0	5.7	6.1
T31	7.7	79.7	4.3	4.7	5.0	6.3	7.0	7.0	7.0	7.0	7.0	6.1
IS-TF-287	7.3	75.0	4.0	5.0	6.0	7.3	7.7	6.3	6.3	6.7	6.0	6.1
W41	7.7	63.3	4.7	6.0	7.3	7.7	5.0	5.3	5.7	6.0	7.0	6.1
ATF 1736	7.0	77.3	4.0	5.0	6.3	7.3	7.3	6.3	6.3	6.7	5.0	6.0
GTO	7.7	59.7	4.0	5.0	6.3	7.0	5.7	6.0	6.0	6.7	7.3	6.0
DB1	7.0	74.7	3.7	4.3	5.0	6.7	7.3	7.0	7.0	7.0	6.3	6.0
Firebird 2	6.3	67.3	3.7	5.0	6.3	7.7	7.0	6.3	6.0	5.7	6.3	6.0
Hemi	7.3	74.0	3.7	5.0	6.3	7.3	7.0	6.7	6.0	6.0	6.0	6.0



Table 3. 2013 mean turf performance ratings of tall fescue cultivars grown under shade at Carbondale, IL (Cont'd).

Entry	Seedling	% Cover	Turf Quality									
	Vigor	Summer	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Mean
IS-TF 269 SEL	6.0	70.0	5.0	5.7	6.3	6.3	6.7	6.3	6.0	6.0	5.3	6.0
IS-TF 289	6.3	77.7	3.0	4.0	5.0	6.7	7.7	7.3	7.0	7.0	6.7	6.0
K12-05	6.0	70.7	3.3	4.3	5.3	7.0	6.0	6.3	7.3	7.7	6.7	6.0
LTP-F5DPDR	7.0	67.7	4.3	5.7	6.7	6.3	5.7	6.0	6.7	6.7	6.3	6.0
PPG-TF-138	6.3	77.0	4.0	5.0	5.7	7.3	6.0	6.3	6.3	6.7	6.3	6.0
PPG-TF-139	7.0	80.7	3.7	5.0	5.7	6.7	6.7	6.3	6.7	7.0	6.0	6.0
PPG-TF-147	6.3	73.7	3.7	4.7	5.7	6.7	7.7	5.7	6.3	7.0	6.3	6.0
PST-5BRK	7.0	76.7	3.7	5.0	5.7	7.3	6.3	7.0	6.7	6.3	5.7	6.0
PST-5EX2	7.7	70.3	4.3	5.7	7.3	7.0	7.0	5.3	5.7	5.7	6.0	6.0
Regenerate	7.3	71.0	4.3	5.3	7.0	7.0	6.0	6.3	5.7	5.7	6.3	6.0
TD1	7.7	76.7	3.7	4.0	5.0	7.0	6.3	6.7	7.0	7.3	6.7	6.0
Terrano	7.3	68.3	4.7	6.0	7.3	6.3	5.3	6.3	6.0	6.3	6.0	6.0
BAR FA 121089	7.0	69.7	4.0	4.7	5.3	6.7	7.0	6.3	6.3	6.3	6.7	5.9
DZ1	6.0	79.0	3.7	4.0	5.3	6.3	6.3	7.0	7.0	7.7	6.0	5.9
IS-TF 307 SEL	6.0	74.7	4.0	5.0	5.7	6.7	7.3	6.3	6.7	6.3	5.3	5.9
IS-TF 330	5.7	66.0	4.0	4.7	5.7	6.0	6.3	6.7	6.7	6.7	6.0	5.9
PPG-TF-150	7.0	74.3	4.0	5.0	6.3	7.0	7.0	6.0	6.0	6.0	6.0	5.9
PPG-TF-157	6.0	77.0	3.3	4.7	5.7	6.3	7.0	6.7	6.7	7.0	6.0	5.9
Inspiration	7.3	75.7	3.7	4.7	6.0	6.0	6.3	6.3	6.7	6.7	6.3	5.9
RAD-TF-83	7.0	67.3	3.7	4.3	5.3	6.0	7.7	6.0	6.3	6.7	7.0	5.9
BURL TF-69	6.7	73.0	4.0	4.7	5.3	7.0	6.0	6.3	6.0	6.3	6.7	5.8
IS-TF 272	6.3	72.7	3.7	4.7	5.3	6.7	7.3	6.0	6.3	6.7	5.3	5.8
IS-TF 291	6.7	63.7	4.0	5.3	6.3	7.0	6.7	6.3	6.0	5.7	5.0	5.8
JS 916	7.0	72.3	4.0	5.0	6.0	6.3	6.3	6.3	6.0	6.3	5.7	5.8
RAD-TF-92	7.3	60.3	4.3	5.7	7.3	8.0	6.3	5.0	5.0	5.3	5.0	5.8
BAR FA 121095	7.7	60.0	4.3	5.7	7.3	8.0	5.3	5.7	5.3	5.0	4.7	5.7
Bullseye	6.3	67.7	3.3	4.7	5.3	7.0	7.7	5.3	6.0	6.0	6.3	5.7
Falcon IV	5.7	68.0	4.0	5.0	6.0	6.7	6.7	5.7	6.0	6.3	5.0	5.7
PPG-TF-145	6.7	71.0	3.7	5.0	5.7	7.0	7.0	6.0	6.3	6.7	3.7	5.7
PST-5BP0	6.3	72.3	4.3	5.3	6.0	6.7	6.7	6.0	5.7	5.3	5.3	5.7
F711	6.7	54.0	4.3	5.7	6.7	5.7	5.7	5.0	5.3	6.0	6.3	5.6
IS-TF 282 M2	5.3	69.7	3.7	5.0	6.0	6.3	7.0	6.3	5.7	6.0	4.7	5.6
IS-TF 285	5.7	56.0	3.7	4.0	5.0	6.0	7.7	4.7	6.0	7.0	6.7	5.6
IS-TF 305 SEL	6.7	57.7	4.0	5.7	7.3	7.0	6.0	5.0	5.3	5.3	5.0	5.6
PSG-GSD	6.7	64.7	3.3	4.7	5.7	6.7	6.0	5.7	6.3	6.7	5.3	5.6
PSG-PO1	7.3	56.3	4.0	5.0	6.0	6.7	5.7	4.7	5.7	6.7	6.3	5.6
PST-5MVD	6.7	64.7	4.0	5.0	6.3	7.0	6.0	5.7	5.7	6.0	4.7	5.6
Caesar	7.7	69.0	4.3	5.7	6.3	6.7	6.3	6.0	5.3	4.7	4.7	5.6
Faith	6.3	67.7	3.7	4.0	5.0	6.3	6.3	5.3	6.0	6.7	6.0	5.5
IS-TF 311	6.7	63.0	4.3	5.0	6.0	7.0	6.3	5.3	5.0	5.3	5.0	5.5
JS 818	8.0	65.0	4.3	5.3	6.0	7.0	6.3	6.0	5.7	4.7	4.0	5.5
Swagger	7.7	58.0	4.0	5.0	6.0	7.0	6.3	5.0	5.0	5.3	6.0	5.5
RainDance	6.0	66.3	4.0	5.0	5.7	6.3	6.0	6.3	6.0	5.3	4.7	5.5
IS-TF 276 M2	6.7	71.7	4.0	5.7	6.7	6.3	6.3	5.3	5.0	4.7	4.7	5.4
PSG-8BP2	7.0	57.0	4.0	5.0	7.0	7.7	6.0	4.7	5.0	4.7	5.0	5.4

Table 3. 2013 mean turf performance ratings of tall fescue cultivars grown under shade at Carbondale, IL (Cont'd).

Entry	Seedling Vigor	% Cover Summer	Turf Quality									
			Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Mean
BAR FA 120878	6.7	50.0	3.7	5.0	6.7	7.0	7.3	4.3	4.7	4.7	4.3	5.3
IS-TF 308 SEL	5.3	61.7	3.0	3.7	4.3	5.0	6.7	5.7	6.0	6.3	7.3	5.3
K12-MCD	5.0	64.7	3.7	4.7	5.7	6.7	5.7	5.3	5.0	5.3	5.3	5.3
PST-5DZP	6.7	63.0	4.0	5.0	6.0	5.7	6.0	5.3	5.0	5.0	5.7	5.3
RAD-TF-89	6.3	57.3	4.0	5.3	6.0	7.0	6.0	4.3	4.7	4.7	5.3	5.3
CCR2	7.3	57.7	3.3	4.3	5.0	6.3	5.7	5.0	5.3	5.3	6.3	5.2
Frontline	6.0	59.3	4.0	5.0	5.3	5.3	6.0	5.7	5.3	5.0	5.0	5.2
JS 825	8.0	43.0	4.3	5.7	7.0	7.3	5.3	5.0	4.3	4.0	3.7	5.2
Temptation	6.7	43.3	4.7	5.3	6.3	5.3	6.0	4.7	5.0	4.7	4.7	5.2
COMP. RES. SST	6.3	26.7	5.0	6.3	7.3	4.7	5.7	4.0	4.3	4.0	4.7	5.1
JS 819	6.3	61.0	4.0	5.3	6.0	6.3	5.3	5.3	5.0	4.3	4.0	5.1
Kentucky 31	7.7	63.0	4.3	5.3	6.0	5.0	8.0	5.3	4.7	4.3	3.3	5.1
PSG-TT4	6.3	53.0	3.3	4.3	5.3	6.3	6.3	4.7	4.7	5.0	5.7	5.1
RAD-TF-88	6.0	59.7	3.7	4.3	5.3	6.0	5.3	5.3	5.3	5.0	5.7	5.1
ATF 1612	5.0	58.7	3.3	4.7	5.7	5.7	5.7	5.0	5.0	5.0	5.0	5.0
IS-TF 284 M2	4.0	58.3	3.3	4.0	5.3	6.0	6.7	5.3	5.0	4.7	4.7	5.0
PPG-TF-142	5.7	61.7	3.7	5.0	5.3	6.0	6.3	5.0	4.7	4.3	4.7	5.0
BAR FA 121091	7.0	37.3	4.0	5.0	5.7	6.3	5.3	3.7	4.3	5.0	5.0	4.9
Aquaduct	5.0	55.0	3.0	4.3	5.7	5.7	6.3	5.0	4.7	4.3	4.0	4.8
GO-DFR	6.0	56.0	3.0	4.0	5.0	7.0	6.0	4.3	4.3	4.3	4.7	4.7
JS 809	7.0	26.3	4.0	5.3	6.3	6.3	4.0	3.7	4.0	4.0	3.3	4.6
K12-13	6.3	39.0	3.7	4.3	5.3	5.7	6.3	4.0	4.0	4.0	3.7	4.6
Marauder	6.3	40.7	3.7	5.0	6.3	5.0	5.7	4.3	4.0	3.3	3.0	4.5
Annihilator Ledebor	5.7	16.0	4.3	5.3	6.3	5.7	5.7	2.7	3.0	3.3	3.0	4.4
Warhawk	6.0	51.3	3.7	4.7	5.3	5.0	6.0	4.0	4.0	4.0	2.7	4.4
204 RES. BLK4	7.0	14.7	3.7	4.0	3.7	4.7	4.7	2.3	3.0	3.0	2.7	3.5
<b>LSD (0.05)</b>	<b>2.6</b>	<b>21.5</b>	<b>3.9</b>	<b>2.1</b>	<b>4.8</b>	<b>2.4</b>	<b>5.1</b>	<b>2.8</b>	<b>1.6</b>	<b>2.1</b>	<b>1.9</b>	<b>1.0</b>
<b>CV (%)</b>	<b>15.9</b>	<b>19.0</b>	<b>19.8</b>	<b>17.0</b>	<b>21.6</b>	<b>15.0</b>	<b>20.7</b>	<b>22.4</b>	<b>16.0</b>	<b>19.5</b>	<b>19.2</b>	<b>9.7</b>

<sup>19</sup> ideal

Table 4. 2013 mean turf performance ratings of tall fescue cultivars grown at Wichita, KS.

Entry	Genetic Color	Brown Patch	Fall Color (Nov)	% Est.	Turf Quality						Mean
					Apr	May	June	July	Aug	Sep	
MET 1	6.3 <sup>1</sup>	7.0 <sup>2</sup>	6.3 <sup>3</sup>	75.0	7.7 <sup>3</sup>	7.3	6.3	6.3	5.7	7.7	6.8
PPG-TF-170	6.0	7.3	5.7	73.3	7.3	7.3	5.7	6.7	6.7	7.0	6.8
W45	7.0	7.3	5.7	71.7	6.7	8.0	6.0	6.7	6.7	7.0	6.8
Hot Rod	6.0	7.7	5.7	68.3	6.3	7.7	6.3	6.0	6.3	7.7	6.7
GTO	6.0	8.0	6.0	73.3	6.7	7.7	5.7	6.3	6.7	7.0	6.7
Rhambler 2 SRP	6.0	7.3	5.3	78.3	7.0	8.0	5.7	6.0	6.7	6.7	6.7
LTP-F5DPDR	6.0	6.7	5.7	70.0	6.0	8.0	5.7	6.7	6.3	7.3	6.7
Pick W43	6.7	7.0	6.0	75.0	6.7	8.0	6.0	6.0	6.0	7.3	6.7
PPG-TF-135	6.7	8.0	6.0	71.7	5.7	7.3	6.0	7.0	7.0	7.3	6.7
PPG-TF-137	6.0	8.0	6.0	65.0	6.3	8.0	6.0	6.3	6.7	7.0	6.7
U43	6.7	7.0	5.3	73.3	6.7	7.7	5.7	7.0	5.7	7.7	6.7
ATF 1612	6.0	7.7	5.3	70.0	6.3	7.0	5.7	6.7	6.7	7.0	6.6
B23	6.7	7.7	5.3	78.3	6.7	8.3	5.3	6.0	6.0	7.0	6.6
F711	6.0	8.0	6.0	76.7	6.7	7.0	5.7	6.3	7.0	7.0	6.6
Faith	6.0	7.7	5.3	75.0	6.3	7.7	5.7	6.0	6.7	7.0	6.6
Firebird 2	6.3	7.7	6.0	63.3	5.7	7.7	6.0	6.3	6.7	7.3	6.6
Grande 3	6.3	8.0	6.3	71.7	6.7	7.0	6.0	6.7	6.0	7.3	6.6
IS-TF 291	6.7	6.3	5.7	71.7	5.7	7.3	6.3	6.7	6.0	7.3	6.6
IS-TF 308 SEL	6.0	7.0	6.0	60.0	5.3	8.0	6.0	6.7	6.7	7.0	6.6
IS-TF 310 SEL	6.3	7.3	5.7	65.0	6.0	8.0	6.3	6.0	6.3	6.7	6.6
MET 6 SEL	5.3	8.0	5.3	70.0	5.7	7.7	5.7	6.3	6.7	7.7	6.6
PPG-TF-115	5.7	7.7	5.3	70.0	6.0	7.7	6.3	6.0	6.3	7.3	6.6
PPG-TF-138	6.0	7.0	5.7	63.3	6.3	7.3	6.0	6.3	6.3	7.3	6.6
PPG-TF-157	6.3	7.3	6.3	61.7	5.3	7.3	6.3	6.3	7.0	7.0	6.6
T31	5.7	8.0	6.3	63.3	5.7	7.3	5.7	6.7	6.7	7.3	6.6
DZ1	6.3	6.3	6.0	66.7	5.7	7.3	6.3	6.3	6.0	7.3	6.5
Fesnova	5.3	7.3	5.7	70.0	6.0	7.7	6.0	6.0	6.3	7.0	6.5
Hemi	6.3	6.7	5.7	68.3	6.3	7.7	5.7	6.3	6.0	7.0	6.5
IS-TF 269 SEL	6.0	6.7	5.3	65.0	5.7	7.7	6.0	6.7	6.3	6.7	6.5
IS-TF 305 SEL	6.3	7.0	5.0	65.0	5.3	7.7	6.3	6.3	6.3	7.0	6.5
PPG-TF-150	5.7	7.7	5.7	66.7	6.0	7.3	6.3	6.0	6.3	7.0	6.5
PPG-TF-156	6.3	8.0	5.7	66.7	6.0	7.3	5.7	6.3	6.7	7.0	6.5
PSG-WE1	6.3	8.0	6.0	65.0	5.7	7.7	6.0	6.0	6.7	7.0	6.5
RZ2	5.3	7.3	5.7	66.7	5.7	7.7	6.7	6.0	5.7	7.3	6.5
SRX-TPC	6.0	8.0	5.0	70.0	5.7	7.3	6.7	5.7	6.7	7.0	6.5
U45	6.0	6.7	6.3	61.7	5.7	7.3	6.0	6.3	6.3	7.3	6.5
CCR2	6.0	7.7	6.3	71.7	5.7	8.3	5.7	6.0	6.3	6.7	6.4
Falcon V	6.0	6.7	6.0	73.3	6.3	7.3	6.0	6.3	5.3	7.3	6.4
IS-TF 284 M2	7.0	6.3	5.0	51.7	5.0	7.7	6.3	6.3	6.0	7.0	6.4
IS-TF 285	6.3	8.0	5.3	70.0	5.0	7.7	6.0	6.0	6.7	7.0	6.4
JS 916	6.0	7.3	5.7	56.7	5.7	7.3	6.3	6.3	6.0	7.0	6.4
K12-MCD	5.3	7.3	5.0	75.0	6.3	7.7	6.0	6.0	6.0	6.7	6.4
LTP-FSD	5.7	7.0	5.7	73.3	6.7	7.3	5.7	6.0	6.0	7.0	6.4
LTP-TWUU	6.0	7.0	6.0	71.7	6.3	7.7	5.7	6.0	5.7	7.0	6.4
PPG-TF-105	6.0	7.7	5.3	68.3	5.7	7.7	6.3	6.7	5.7	6.7	6.4

Table 4. 2013 mean turf performance ratings of tall fescue cultivars grown at Wichita, KS (Cont'd).

Entry	Genetic Color	Brown Patch	Fall Color (Nov)	% Est.	Turf Quality						Mean
					Apr	May	June	July	Aug	Sep	
PPG-TF-145	7.0	7.0	5.7	65.0	5.7	7.7	6.3	5.7	6.0	7.0	6.4
PPG-TF-152	6.0	8.0	5.7	63.3	5.0	7.3	6.0	6.3	6.7	7.0	6.4
PPG-TF-172	6.0	7.0	6.3	71.7	6.0	8.0	6.0	5.7	5.7	7.3	6.4
PST-5MVD	5.0	7.3	4.7	71.7	6.0	7.3	6.0	6.3	6.0	7.0	6.4
Terrano	5.3	6.7	5.3	68.3	6.7	7.3	6.3	5.3	6.0	7.0	6.4
W41	6.0	8.0	6.3	68.3	6.0	7.0	6.0	6.0	6.3	7.3	6.4
ZW 44	6.0	8.0	6.3	66.7	5.3	7.0	6.3	6.3	6.7	6.7	6.4
Saltillo	5.0	7.7	5.3	65.0	5.3	7.0	5.7	6.0	6.7	7.3	6.3
PST-5EV2	5.7	7.3	5.3	68.3	6.0	7.3	5.7	6.0	5.7	7.3	6.3
Bizem	6.0	7.7	5.0	63.3	5.7	7.0	6.0	6.0	6.3	7.0	6.3
Bullseye	6.0	7.0	5.0	71.7	6.0	7.3	5.7	6.7	6.0	6.3	6.3
IS-TF 289	6.3	7.0	5.3	70.0	5.7	7.7	5.7	6.0	6.0	7.0	6.3
IS-TF 307 SEL	6.7	7.0	5.3	61.7	5.0	7.7	5.7	7.0	5.7	7.0	6.3
IS-TF 330	6.7	7.3	5.0	61.7	5.3	7.3	6.0	6.3	6.3	6.3	6.3
MET-3	5.7	7.3	5.7	68.3	5.7	7.3	5.0	6.0	6.7	7.0	6.3
PPG-TF-147	5.7	8.0	5.3	66.7	6.3	7.0	5.7	6.0	6.0	7.0	6.3
PPG-TF-151	5.7	6.7	5.0	66.7	5.7	7.3	6.0	6.0	6.0	6.7	6.3
PPG-TF-169	6.0	6.7	6.7	73.3	6.3	7.0	6.0	5.7	5.3	7.3	6.3
PSG-PO1	6.0	6.7	5.7	68.3	5.7	7.0	6.0	6.0	6.3	7.0	6.3
PST-5BP0	5.0	8.0	5.3	61.7	6.3	7.0	5.7	6.0	6.0	7.0	6.3
RAD-TF-83	6.7	6.3	4.7	70.0	5.7	7.3	6.3	6.0	5.3	7.0	6.3
Regenerate	6.7	8.0	6.3	75.0	7.3	7.3	5.3	5.0	6.3	6.7	6.3
IS-TF-287	6.7	6.7	5.0	76.7	6.3	7.3	5.3	6.3	5.3	7.0	6.3
Caesar	6.7	5.7	5.7	76.7	6.3	7.0	6.3	6.0	5.3	6.7	6.3
ATF 1736	6.0	7.7	5.0	68.3	6.3	7.0	5.3	6.0	6.3	6.3	6.2
ATF 1754	6.0	7.0	5.7	63.3	6.0	7.0	6.0	6.0	5.3	7.0	6.2
BAR FA 121089	5.7	6.0	4.7	66.7	6.0	7.0	5.7	6.0	6.0	6.7	6.2
BURL TF-69	6.0	6.7	5.0	70.0	6.0	7.3	5.7	6.0	5.7	6.7	6.2
Catalyst	5.3	7.7	5.3	71.7	5.3	7.7	5.3	5.7	6.3	6.7	6.2
DB1	7.0	4.7	5.7	68.3	5.0	8.0	6.7	6.0	4.7	7.0	6.2
Frontline	7.0	5.7	4.7	70.0	6.0	7.3	5.7	6.7	5.3	6.0	6.2
IS-TF 272	7.3	7.7	5.0	61.7	5.0	7.3	6.3	6.3	5.7	6.3	6.2
K12-05	7.0	6.7	4.7	60.0	5.0	7.7	6.3	6.0	5.7	6.3	6.2
RAD-TF-88	6.3	5.3	5.7	60.0	5.3	8.0	6.3	5.3	5.0	7.0	6.2
ATF 1704	5.3	7.0	5.3	66.7	5.7	7.0	5.7	6.0	5.7	6.7	6.1
Falcon IV	5.3	6.7	5.0	73.3	6.0	7.0	6.0	6.0	5.7	6.0	6.1
IS-TF 276 M2	5.7	7.0	5.0	70.0	6.0	7.0	5.7	6.0	5.3	6.3	6.1
IS-TF 282 M2	7.0	6.7	4.7	60.0	4.7	7.3	6.0	6.3	5.7	6.7	6.1
PPG-TF-139	5.7	8.0	5.0	61.7	5.0	7.3	5.7	6.0	6.7	6.0	6.1
PSG-8BP2	5.3	7.7	4.7	70.0	5.3	7.3	5.7	5.7	5.7	6.7	6.1
PSG-GSD	5.0	7.7	5.0	75.0	6.0	7.3	5.7	5.7	5.7	6.3	6.1
PST-5BRK	5.3	7.0	5.0	71.7	5.7	7.0	6.0	5.3	5.3	7.0	6.1
Swagger	5.3	7.7	4.7	71.7	6.0	6.7	5.7	6.0	6.0	6.3	6.1
Inspiration	5.0	7.3	5.0	66.7	6.3	7.0	5.7	5.7	5.3	6.3	6.1
RAD-TF-89	6.3	6.3	5.0	63.3	4.7	7.7	6.0	6.0	5.7	6.7	6.1

Table 4. 2013 mean turf performance ratings of tall fescue cultivars grown at Wichita, KS (Cont'd).

Entry	Genetic Color	Brown Patch	Fall Color (Nov)	% Est.	Turf Quality						Mean
					Apr	May	June	July	Aug	Sep	
RAD-TF-92	6.7	6.7	5.3	70.0	5.3	7.0	6.0	6.0	5.3	7.0	6.1
IS-TF 311	6.0	7.7	5.7	61.7	5.0	6.7	5.0	6.0	6.3	7.0	6.0
JS 818	6.0	5.7	4.7	76.7	5.7	7.3	6.0	6.7	4.7	5.7	6.0
PSG-TT4	5.0	6.0	4.7	68.3	5.7	7.0	5.3	5.7	5.0	7.0	5.9
PST-5DZP	5.7	4.7	4.7	60.0	5.0	7.3	6.0	5.7	4.7	7.0	5.9
PST-5EX2	5.0	8.0	5.0	75.0	5.3	6.3	5.3	5.7	6.0	7.0	5.9
TD1	6.3	4.7	5.7	68.3	5.0	7.7	6.7	6.0	4.3	6.0	5.9
Meridian	5.3	7.3	4.7	70.0	5.0	7.7	4.7	5.3	6.0	6.3	5.8
K12-13	6.7	5.3	4.3	55.0	4.0	7.3	6.3	6.3	5.3	5.7	5.8
Temptation	7.3	6.0	4.7	70.0	5.0	7.0	6.3	6.0	4.3	6.3	5.8
RainDance	5.0	6.7	4.7	68.3	5.3	7.0	5.3	5.7	5.3	6.3	5.8
COMP. RES. SST	5.7	4.0	4.7	65.0	5.7	7.3	6.0	6.0	3.7	5.7	5.7
Aquaduct	5.0	5.7	4.7	73.3	6.3	6.3	5.7	6.3	4.3	4.7	5.6
BAR FA 121091	7.0	5.3	3.7	65.0	5.7	7.0	5.7	5.3	4.3	5.7	5.6
PPG-TF-142	7.0	5.3	5.3	66.7	4.0	7.0	6.3	6.0	4.7	5.7	5.6
GO-DFR	6.3	6.7	5.7	65.0	5.0	6.0	5.0	5.3	5.3	6.3	5.5
JS 809	5.7	5.7	4.0	76.7	6.3	7.3	5.3	5.0	4.3	4.7	5.5
204 RES. BLK4	5.7	4.7	4.3	65.0	5.0	7.0	5.7	5.7	4.7	4.3	5.4
BAR FA 121095	6.0	4.7	4.7	65.0	3.7	7.0	5.3	5.7	4.3	6.3	5.4
JS 819	6.0	5.7	4.3	70.0	4.7	7.3	5.3	5.0	4.3	6.0	5.4
Marauder	5.0	4.0	3.7	66.7	5.7	7.0	6.0	5.7	3.0	5.0	5.4
JS 825	5.3	4.7	4.0	66.7	4.3	7.7	5.3	5.3	3.7	5.7	5.3
Annihilator Ledebor	5.0	5.3	4.0	73.3	4.7	5.7	5.0	5.7	4.3	5.0	5.1
Warhawk	5.3	3.3	4.3	68.3	5.7	6.7	6.0	4.3	3.3	4.3	5.1
BAR FA 120878	4.0	7.3	4.3	68.3	5.3	5.0	5.0	4.0	4.7	4.0	4.7
Kentucky 31	3.0	8.0	4.0	84.7	4.0	3.3	3.7	4.0	3.0	3.0	3.5
<b>LSD (0.05)</b>	<b>0.7</b>	<b>2.2</b>	<b>0.9</b>	<b>9.3</b>	<b>1.8</b>	<b>1.0</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.0</b>	<b>0.6</b>
<b>CV (%)</b>	<b>7.8</b>	<b>16.8</b>	<b>10.6</b>	<b>7.8</b>	<b>15.2</b>	<b>8.2</b>	<b>9.9</b>	<b>11.0</b>	<b>14.8</b>	<b>9.8</b>	<b>6.0</b>

<sup>1</sup>9 = dark green; <sup>2</sup>9 = no disease; <sup>3</sup>9 = ideal

Table 5. 2013 mean brown patch ratings of tall fescue cultivars grown 4 locations in the US.

Entry	AR1	NC1	NJ2	TN1	Mean
W45	9.0 <sup>1</sup>	8.0	7.7	8.7	8.3
RZ2	8.3	8.7	6.7	8.7	8.1
MET-3	8.7	8.7	6.3	8.7	8.1
F711	8.7	8.7	5.7	9.0	8.0
CCR2	8.7	8.0	7.0	8.0	7.9
PPG-TF-156	9.0	7.7	6.3	8.7	7.9
IS-TF 330	9.0	8.3	5.7	8.3	7.8
MET 6 SEL	8.3	8.0	6.3	8.7	7.8
Rhambler 2 SRP	8.3	8.3	5.7	9.0	7.8
ZW 44	7.7	8.0	7.0	8.7	7.8
ATF 1704	8.7	8.7	5.7	8.0	7.8
IS-TF 285	9.0	7.7	5.7	8.7	7.8
U43	7.7	8.0	7.0	8.3	7.8
Hemi	8.0	8.0	5.7	9.0	7.7
B23	7.0	8.0	7.0	8.7	7.7
IS-TF 305 SEL	8.7	8.0	5.0	9.0	7.7
LTP-TWUU	7.3	7.7	7.3	8.3	7.7
PPG-TF-137	8.0	8.0	6.0	8.7	7.7
PST-5EV2	8.3	7.7	6.0	8.3	7.6
IS-TF 311	8.3	8.0	5.3	8.7	7.6
PPG-TF-150	8.0	8.3	5.7	8.3	7.6
PST-5EX2	8.0	8.3	5.7	8.3	7.6
SRX-TPC	9.0	7.7	5.3	8.3	7.6
Pick W43	8.7	8.0	5.7	8.0	7.6
LTP-F5DPDR	8.0	8.3	5.7	8.0	7.5
ATF 1736	8.7	8.3	4.3	8.7	7.5
Fesnova	8.0	8.0	6.0	8.0	7.5
Hot Rod	7.0	8.0	6.3	8.7	7.5
IS-TF 291	8.3	7.7	5.3	8.7	7.5
IS-TF-287	9.0	7.7	5.0	8.3	7.5
Firebird 2	7.3	8.0	6.0	8.3	7.4
PPG-TF-139	8.7	7.7	5.0	8.3	7.4
PPG-TF-157	6.7	8.0	6.3	8.7	7.4
U45	7.3	7.7	6.0	8.7	7.4
Falcon V	6.7	8.0	5.7	9.0	7.3
PPG-TF-105	5.3	8.3	6.7	9.0	7.3
PST-5MVD	8.0	7.7	5.3	8.3	7.3
Bizem	8.0	7.7	5.3	8.0	7.3
Faith	7.0	7.3	6.0	8.7	7.3
K12-MCD	8.7	7.7	4.0	8.7	7.3
LTP-FSD	7.7	8.0	4.7	8.7	7.3
PPG-TF-135	7.3	7.7	5.3	8.7	7.3
PPG-TF-152	5.3	8.3	6.3	9.0	7.3
Regenerate	7.0	7.7	6.3	8.0	7.3
Meridian	7.3	7.7	5.3	8.3	7.2
GTO	6.7	7.7	5.7	8.7	7.2
PPG-TF-172	6.3	8.0	5.7	8.7	7.2
PSG-PO1	6.7	7.7	5.7	8.7	7.2
Bullseye	8.0	7.3	4.7	8.3	7.1
Catalyst	6.0	8.0	5.7	8.7	7.1
IS-TF 310 SEL	6.7	7.3	5.7	8.7	7.1
MET 1	6.0	8.0	5.7	8.7	7.1
PSG-WE1	6.7	8.0	5.0	8.7	7.1
T31	7.0	7.7	5.3	8.3	7.1
Grande 3	7.3	7.3	5.0	8.7	7.1
ATF 1612	5.3	8.0	5.7	9.0	7.0
IS-TF 307 SEL	6.7	8.0	4.7	8.7	7.0
PPG-TF-115	7.0	8.7	3.7	8.7	7.0
PPG-TF-170	5.3	8.3	6.3	8.0	7.0
IS-TF 284 M2	7.0	7.7	4.7	8.3	6.9

Table 5. 2013 mean brown patch ratings of tall fescue cultivars grown 4 locations in the US (Cont'd).

Entry	AR1	NC1	NJ2	TN1	Mean
JS 916	6.7	7.7	5.3	8.0	6.9
ATF 1754	7.3	7.0	4.7	8.7	6.9
IS-TF 282 M2	8.7	7.7	3.3	8.0	6.9
PST-5BP0	7.3	8.0	4.3	8.0	6.9
BAR FA 121095	7.3	7.3	4.3	8.3	6.8
Caesar	9.0	7.0	3.7	7.7	6.8
IS-TF 289	6.7	7.3	5.0	8.3	6.8
IS-TF 308 SEL	6.3	7.7	4.7	8.7	6.8
PPG-TF-148	3.3	8.3	6.7	9.0	6.8
PSG-GSD	7.0	7.7	4.3	8.3	6.8
PST-5BRK	6.0	8.0	5.3	8.0	6.8
Terrano	7.3	8.0	4.3	7.7	6.8
PPG-TF-169	6.0	7.7	5.7	7.7	6.8
Falcon IV	7.7	7.3	3.7	8.3	6.8
Kentucky 31	9.0	7.3	3.7	7.0	6.8
PPG-TF-145	7.3	7.3	4.0	8.3	6.8
RAD-TF-89	6.7	6.7	5.7	8.0	6.8
W41	6.3	7.3	5.0	8.3	6.8
DZ1	6.0	8.0	4.3	8.3	6.7
RAD-TF-92	6.3	7.0	5.0	8.3	6.7
TD1	5.0	7.3	5.7	8.7	6.7
RAD-TF-83	5.7	7.7	4.7	8.3	6.6
<b>Saltillo</b>	<b>5.3</b>	<b>8.0</b>	<b>4.3</b>	<b>8.3</b>	<b>6.5</b>
BAR FA 121089	6.3	7.3	4.7	7.7	6.5
Frontline	7.7	6.7	3.7	8.0	6.5
IS-TF 269 SEL	5.7	7.7	4.3	8.3	6.5
PSG-8BP2	6.3	7.3	3.3	9.0	6.5
Temptation	5.3	8.0	4.3	8.3	6.5
JS 825	6.7	7.7	3.7	7.7	6.4
Inspiration	6.3	7.3	3.7	8.3	6.4
IS-TF 272	4.0	7.7	5.0	8.7	6.3
PPG-TF-142	5.7	7.0	4.7	8.0	6.3
Swagger	6.7	7.3	3.0	8.3	6.3
PPG-TF-151	4.3	8.0	5.0	8.0	6.3
IS-TF 276 M2	4.7	7.7	4.0	8.7	6.3
PPG-TF-138	4.7	7.7	4.7	7.7	6.2
RAD-TF-88	3.7	7.7	5.3	8.0	6.2
K12-13	6.0	7.7	3.0	7.7	6.1
BURL TF-69	3.0	7.7	5.0	8.3	6.0
PSG-TT4	5.0	7.3	3.7	8.0	6.0
JS 819	4.7	6.7	4.0	8.3	5.9
PST-5DZP	4.3	7.7	3.3	8.3	5.9
DB1	3.7	7.3	4.3	8.3	5.9
Aquaduct	5.7	6.7	3.0	8.0	5.8
K12-05	3.3	7.7	4.3	8.0	5.8
RainDance	3.7	7.3	4.3	7.7	5.8
BAR FA 120878	6.7	6.0	2.7	7.3	5.7
GO-DFR	2.7	7.7	4.0	8.3	5.7
Warhawk	4.0	7.0	2.3	8.3	5.4
Annihilator Ledebouer	5.0	6.3	2.3	8.0	5.4
JS 809	2.0	8.0	4.0	7.3	5.3
JS 818	2.3	7.3	3.7	8.0	5.3
Marauder	3.0	6.7	2.7	8.3	5.2
COMP. RES. SST	2.0	6.7	3.3	8.0	5.0
BAR FA 121091	2.7	6.3	2.3	7.7	4.8
204 RES. BLK4	0.7	6.0	3.0	8.3	4.5
<b>LSD (0.05)</b>	<b>3.9</b>	<b>1.1</b>	<b>1.8</b>	<b>0.8</b>	<b>1.1</b>
<b>CV (%)</b>	<b>36.9</b>	<b>8.7</b>	<b>22.2</b>	<b>6.1</b>	<b>20.3</b>

<sup>1</sup>9 = no disease

Table 6. 2013 mean brown patch ratings of tall fescue cultivars grown at North Brunswick, NJ.

Entry	03 July	25 July	Mean
MET 6 SEL	8.3 <sup>1</sup>	7.0	7.7
PPG-TF-150	8.0	7.3	7.7
PPG-TF-172	8.7	6.7	7.7
PSG-WE1	8.3	7.0	7.7
Bullseye	8.7	6.3	7.5
ATF 1612	8.0	6.7	7.3
Bizem	8.7	6.0	7.3
CCR2	8.3	6.3	7.3
IS-TF 307 SEL	8.7	6.0	7.3
PPG-TF-105	7.7	7.0	7.3
PSG-GSD	8.0	6.7	7.3
Rhambler 2 SRP	8.0	6.7	7.3
RZ2	8.3	6.3	7.3
Falcon V	8.3	6.0	7.2
IS-TF 289	8.7	5.7	7.2
MET-3	8.0	6.3	7.2
Regenerate	8.3	6.0	7.2
PST-5EV2	8.7	5.3	7.0
IS-TF 311	8.0	6.0	7.0
LTP-TWUU	8.3	5.7	7.0
MET 1	8.0	6.0	7.0
SRX-TPC	8.3	5.7	7.0
Hemi	8.0	5.7	6.8
F711	8.0	5.3	6.7
LTP-F5DPDR	7.7	5.7	6.7
PPG-TF-142	7.3	6.0	6.7
PPG-TF-156	8.3	5.0	6.7
U45	8.3	5.0	6.7
Firebird 2	8.3	4.7	6.5
GTO	8.0	5.0	6.5
RAD-TF-89	7.7	5.3	6.5
W41	8.3	4.7	6.5
Pick W43	8.7	4.0	6.3
B23	7.7	4.7	6.2
Faith	7.0	5.3	6.2
Fesnova	7.3	5.0	6.2
PPG-TF-152	8.0	4.3	6.2
W45	7.3	5.0	6.2
<b>Saltillo</b>	<b>7.7</b>	<b>4.3</b>	<b>6.0</b>
Hot Rod	8.0	4.0	6.0
IS-TF 291	8.0	4.0	6.0
PPG-TF-137	7.7	4.3	6.0
PPG-TF-139	8.0	4.0	6.0
PPG-TF-157	8.0	4.0	6.0
PST-5EX2	7.3	4.7	6.0
U43	7.7	4.3	6.0
ZW 44	7.7	4.3	6.0
IS-TF 284 M2	7.3	4.3	5.8
IS-TF 305 SEL	7.7	4.0	5.8
PPG-TF-151	7.0	4.7	5.8
Terrano	8.0	3.7	5.8
ATF 1704	7.3	4.0	5.7
Grande 3	7.3	4.0	5.7
JS 916	7.7	3.7	5.7
LTP-FSD	7.3	4.0	5.7
PPG-TF-135	7.0	4.3	5.7
PPG-TF-170	8.0	3.3	5.7
ATF 1736	7.7	3.3	5.5
Falcon IV	8.0	3.0	5.5
Kentucky 31	6.0	5.0	5.5



Table 6. 2013 mean brown patch ratings of tall fescue cultivars grown at North Brunswick, NJ (Cont'd).

Entry	03 July	25 July	Mean
PPG-TF-169	7.0	4.0	5.5
PST-5DZP	7.7	3.3	5.5
RainDance	7.3	3.7	5.5
ATF 1754	7.0	3.7	5.3
Caesar	6.7	4.0	5.3
IS-TF 282 M2	7.0	3.7	5.3
PPG-TF-148	7.3	3.3	5.3
PST-5MVD	6.7	4.0	5.3
RAD-TF-92	7.7	3.0	5.3
BURL TF-69	7.3	3.0	5.2
Catalyst	6.7	3.7	5.2
PSG-TT4	6.7	3.7	5.2
DZ1	7.0	3.0	5.0
GO-DFR	6.7	3.3	5.0
IS-TF 285	7.3	2.7	5.0
IS-TF 308 SEL	7.3	2.7	5.0
PST-5BRK	6.7	3.3	5.0
Annihilator Ledebor	7.0	2.7	4.8
BAR FA 121095	6.7	3.0	4.8
IS-TF 269 SEL	6.7	3.0	4.8
IS-TF 330	7.3	2.3	4.8
JS 825	6.3	3.3	4.8
PST-5BP0	6.0	3.7	4.8
Swagger	6.7	3.0	4.8
BAR FA 121089	6.3	3.0	4.7
Frontline	6.0	3.3	4.7
T31	6.3	3.0	4.7
Meridian	5.7	3.3	4.5
IS-TF 310 SEL	6.3	2.7	4.5
IS-TF-287	7.0	2.0	4.5
PPG-TF-145	7.0	2.0	4.5
Temptation	5.3	3.7	4.5
Aqueduct	5.3	3.3	4.3
Inspiration	5.7	3.0	4.3
K12-MCD	6.0	2.7	4.3
Marauder	6.3	2.3	4.3
PSG-PO1	6.3	2.3	4.3
BAR FA 120878	5.7	2.7	4.2
JS 809	5.7	2.7	4.2
JS 818	5.3	3.0	4.2
PPG-TF-115	6.3	2.0	4.2
PSG-8BP2	6.3	2.0	4.2
RAD-TF-88	6.3	2.0	4.2
BAR FA 121091	6.3	1.7	4.0
DB1	6.0	2.0	4.0
IS-TF 276 M2	6.3	1.3	3.8
COMP. RES. SST	5.3	2.0	3.7
PPG-TF-138	6.0	1.3	3.7
TD1	5.7	1.7	3.7
204 RES. BLK4	5.0	2.0	3.5
JS 819	5.3	1.3	3.3
RAD-TF-83	5.3	1.3	3.3
IS-TF 272	5.3	1.0	3.2
Warhawk	5.3	1.0	3.2
K12-05	3.3	1.0	2.2
K12-13	3.0	1.0	2.0
<b>LSD (0.05)</b>	<b>3.0</b>	<b>5.0</b>	<b>3.3</b>
<b>CV (%)</b>	<b>19.8</b>	<b>54.5</b>	<b>28.5</b>

<sup>1</sup>9 = no disease

Table 7. 2013 mean brown patch ratings of tall fescue cultivars grown at Stillwater, OK.

Entry	13 Aug	29 Aug	10 Sep	Mean
BAR FA 120878	7.7 <sup>1</sup>	7.3	7.3	7.4
BAR FA 121089	7.7	7.0	7.7	7.4
Kentucky 31	7.7	7.0	7.7	7.4
Terrano	7.7	6.7	7.7	7.3
K12-MCD	8.0	6.7	7.0	7.2
Raindance	8.0	6.7	7.0	7.2
Saltillo	8.0	6.3	6.7	7.0
Aquaduct	7.3	6.3	7.3	7.0
PPG-TF-145	7.3	6.7	7.0	7.0
IS-TF 282 M2	8.0	6.0	6.7	6.9
PPG-TF-115	7.3	6.7	6.7	6.9
PST-5BP0	8.0	6.0	6.7	6.9
PST-5DZP	7.3	6.7	6.7	6.9
Frontline	7.7	6.3	6.3	6.8
Inspiration	6.7	6.7	7.0	6.8
PSG-8BP2	6.0	6.7	7.7	6.8
Meridian	7.0	6.3	6.7	6.7
IS-TF 276 M2	7.7	6.0	6.3	6.7
IS-TF 311	7.0	6.3	6.7	6.7
JS 825	7.0	6.0	7.0	6.7
Swagger	7.3	6.0	6.7	6.7
Temptation	7.3	6.3	6.3	6.7
PST-5EV2	6.7	6.3	6.7	6.6
GO-DFR	7.3	6.0	6.3	6.6
IS-TF 284 M2	7.0	6.0	6.7	6.6
IS-TF 305 SEL	7.0	6.0	6.7	6.6
PPG-TF-138	7.3	6.0	6.3	6.6
Bizem	7.3	5.3	6.7	6.4
CCR2	7.0	6.0	6.3	6.4
PPG-TF-157	7.3	5.7	6.3	6.4
PST-5EX2	7.0	6.0	6.3	6.4
SRX-TPC	7.3	5.7	6.3	6.4
W41	7.0	5.7	6.7	6.4
Caesar	6.3	6.0	6.7	6.3
IS-TF 285	7.7	6.0	5.3	6.3
LTP-FSD	8.0	5.7	5.3	6.3
PPG-TF-151	6.0	6.0	7.0	6.3
PSG-TT4	6.0	6.3	6.7	6.3
PST-5BRK	6.7	6.0	6.3	6.3
BAR FA 121095	5.7	5.7	7.3	6.2
IS-TF 289	7.0	5.7	6.0	6.2
IS-TF 307 SEL	7.0	5.3	6.3	6.2
PPG-TF-142	7.3	5.7	5.7	6.2
PSG-GSD	7.0	5.7	6.0	6.2
Rhambler 2 SRP	7.3	5.3	6.0	6.2
ATF 1704	6.7	5.7	6.0	6.1
BAR FA 121091	5.7	6.0	6.7	6.1
Falcon IV	6.7	5.3	6.3	6.1
PPG-TF-139	6.7	6.0	5.7	6.1
PPG-TF-152	6.3	6.0	6.0	6.1
IS-TF 330	6.7	5.3	6.0	6.0
JS 916	6.3	5.3	6.3	6.0
LTP-F5DPDR	6.7	5.7	5.7	6.0
Pick W43	6.3	5.7	6.0	6.0
K12-05	5.7	5.7	6.3	5.9
PPG-TF-172	6.3	5.3	6.0	5.9
Faith	6.7	5.0	5.7	5.8
GTO	6.7	5.3	5.3	5.8
IS-TF 269 SEL	6.3	5.0	6.0	5.8
IS-TF 310 SEL	6.0	5.3	6.0	5.8

Table 7. 2013 mean brown patch ratings of tall fescue cultivars grown at Stillwater, OK (Cont'd).

Entry	13 Aug	29 Aug	10 Sep	Mean
MET-3	5.3	6.0	6.0	5.8
RZ2	6.3	5.0	6.0	5.8
F711	6.3	5.3	5.3	5.7
Fesnova	6.0	5.0	6.0	5.7
JS 809	6.3	5.3	5.3	5.7
JS 818	6.7	5.0	5.3	5.7
LTP-TWUU	6.0	5.0	6.0	5.7
MET 1	6.7	5.0	5.3	5.7
PPG-TF-150	6.0	5.3	5.7	5.7
Warhawk	6.3	4.7	6.0	5.7
ATF 1612	5.7	5.3	5.7	5.6
DZ1	6.7	5.0	5.0	5.6
PPG-TF-105	6.7	5.0	5.0	5.6
TD1	4.7	5.7	6.3	5.6
Falcon V	6.3	5.0	5.0	5.4
Grande 3	6.0	4.7	5.7	5.4
JS 819	6.7	5.0	4.7	5.4
IS-TF 272	5.0	5.3	5.7	5.3
IS-TF 308 SEL	5.7	5.0	5.3	5.3
PPG-TF-170	6.7	5.0	4.3	5.3
T31	6.0	5.0	5.0	5.3
W45	5.7	4.7	5.7	5.3
Firebird 2	6.3	4.3	5.0	5.2
IS-TF-287	5.7	4.7	5.3	5.2
U45	5.3	5.0	5.3	5.2
IS-TF 291	6.0	5.0	4.3	5.1
PPG-TF-137	6.0	5.0	4.3	5.1
PST-5MVD	5.3	5.0	5.0	5.1
ATF 1754	5.7	4.7	4.7	5.0
PPG-TF-169	5.7	4.7	4.7	5.0
ATF 1736	5.7	4.3	4.7	4.9
Hot Rod	6.0	4.3	4.3	4.9
K12-13	3.7	5.3	5.7	4.9
ZW 44	5.0	4.7	5.0	4.9
MET 6 SEL	5.7	4.3	4.3	4.8
PSG-WE1	5.0	4.3	5.0	4.8
B23	5.7	4.3	4.0	4.7
PPG-TF-156	5.7	4.0	4.3	4.7
Bullseye	5.0	4.3	4.3	4.6
DB1	4.0	4.7	5.0	4.6
Hemi	5.0	4.0	4.3	4.4
PPG-TF-148	5.0	4.0	4.3	4.4
PPG-TF-135	4.7	4.3	4.0	4.3
PSG-PO1	4.7	3.7	4.7	4.3
Regenerate	4.7	4.3	4.0	4.3
U43	4.3	3.7	4.3	4.1
Catalyst	4.0	3.7	3.7	3.8
RAD-TF-92	4.3	2.7	4.3	3.8
RAD-TF-83	3.7	3.3	3.7	3.6
BURL TF-69	3.7	3.0	3.3	3.3
Annihilator Ledeboer	4.3	3.0	2.3	3.2
COMP. RES. SST	4.0	3.7	2.0	3.2
RAD-TF-89	3.3	2.7	2.3	2.8
204 RES. BLK4	3.3	2.3	2.3	2.7
Marauder	3.3	2.3	2.3	2.7
RAD-TF-88	2.3	2.3	2.0	2.2
<b>LSD (0.05)</b>	<b>1.9</b>	<b>1.2</b>	<b>1.6</b>	<b>1.2</b>
<b>CV (%)</b>	<b>18.3</b>	<b>15.0</b>	<b>18.0</b>	<b>13.8</b>

<sup>1</sup>9 = no disease

Table 8. 2013 mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2012 near Rolesville, NC and maintained at a 2.0" mowing height.

Entry	Brown Patch	Summer Turf Quality
Cumberland	6.8 <sup>1</sup>	6.0 <sup>2</sup>
Faith	7.2	5.8
Dynamic II	5.9	5.6
Saltillo	5.9	5.5
Rebel XL	5.7	5.5
Bullseye	6.0	5.3
Raptor II	6.2	5.1
Wolfpack II	6.2	5.1
Grande 3	5.9	5.1
Tar Heel II	6.7	5.0
Endeavor II	5.7	5.0
Inspiration	6.4	5.0
Matador GT	6.3	4.9
Speedway	5.1	4.9
Coronado TDH	6.0	4.8
Virtue II	6.9	4.8
Fat Cat	4.4	4.8
Shenandoah Sport	5.2	4.8
Tulsa Time	5.8	4.8
Falcon V	6.1	4.7
Tarnation GT	5.0	4.6
Mustang 4	5.3	4.6
RainDance	5.0	4.5
Titanium LS	5.4	4.5
Innovator	5.4	4.4
Grande II	3.9	4.3
Firecracker LS	5.0	4.3
Finelawn Xpress	5.0	4.2
Shenandoah Elite	6.6	4.2
Gazelle II	4.8	4.1
Wolfpack	6.3	4.0
Silverstar	5.6	3.8
Crossfire 3	4.0	3.5
Kentucky 31	3.0	2.0
<b>LSD (0.05)</b>	<b>1.7</b>	<b>0.9</b>
<b>CV (%)</b>	<b>18.9</b>	<b>11.0</b>

<sup>1</sup>9 = no disease; <sup>2</sup>9 = ideal

Table 9. 2013 mean turf quality and percent green cover ratings for entries in a tall fescue turf trial seeded fall of 2012 in a rain-out shelter near Rolesville, NC and maintained at a 2.0" mowing height.

Entry	Turf Quality Through July	% Green Cover*										
		19 July	01 Aug	09 Aug	16 Aug	23 Aug	30 Aug	06 Sep	13 Sep	01 Oct	31 Oct	20 Nov
Saltillo	5.8 <sup>1</sup>	95.6	94.6	88.5	76.7	69.9	69.1	67.6	69.1	73.1	70.8	64.1
Cumberland	5.7	95.4	95.3	89.7	73.7	62.1	56.0	50.7	56.0	54.8	55.5	51.0
Kentucky 31	2.5	96.3	97.4	94.6	78.9	70.3	57.1	50.3	57.1	55.2	55.8	49.7
Inspiration	5.1	94.7	95.3	90.4	71.8	58.8	54.3	50.0	54.3	53.7	59.6	53.3
RainDance	6.2	95.4	93.2	85.5	63.8	51.5	42.6	40.9	42.6	50.1	54.5	50.0
Virtue II	5.4	95.0	95.4	86.5	51.5	42.2	38.8	33.5	38.8	38.1	41.6	36.2
Tarnation GT	5.5	92.2	87.9	74.1	44.7	34.8	30.5	25.6	30.5	30.2	38.8	33.2
Crackle	6.1	93.5	88.3	77.3	44.9	27.6	24.5	24.0	24.5	27.8	35.4	29.1
2 <sup>nd</sup> Millennium	5.8	93.8	91.9	81.4	53.5	38.7	32.6	23.6	32.6	28.3	33.9	30.0
PST-5WAL	5.3	92.9	86.0	74.0	48.6	34.2	23.6	16.4	23.6	20.1	22.2	20.2
LSD (0.05)	0.8	2.9	5.7	10.7	23.6	26.1	27.7	29.3	27.7	29.9	25.3	25.5
CV (%)	9.9	2.2	4.4	8.8	26.8	37.2	45.7	54.9	45.7	49.4	37.7	42.4

<sup>1</sup>9 = ideal; \*evaluated using digital image analysis  
Irrigation was withheld beginning 19 July

Table 10. Mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2011 near Rolesville, NC and maintained at a 2" mowing height.

Entry	Turf Quality			Brown Patch		
	2012	2013	Mean	2012	2013	Mean
Saltillo	5.0	3.6 <sup>1</sup>	4.3	7.3 <sup>2</sup>	6.5	6.9
RainDance	5.1	5.2	5.1	6.6	6.2	6.4
Cumberland	5.8	6.4	6.1	6.4	6.2	6.3
Virtue II	3.1	3.3	3.2	5.4	5.7	5.5
Coronado TDH	4.4	2.6	3.5	4.9	5.8	5.4
Tar Heel II	4.3	2.8	3.5	5.3	5.2	5.3
Wolfpack	3.7	3.0	3.4	5.2	5.5	5.3
Endeavor II	4.3	3.0	3.7	4.4	6.0	5.2
Duration	4.4	3.3	3.9	3.9	5.8	4.9
Dynamic II	4.6	4.2	4.4	3.6	6.0	4.8
Titanium LS	4.4	2.2	3.3	4.3	5.3	4.8
Tulsa Time	4.6	2.4	3.5	4.9	4.5	4.7
Tarnation GT	4.4	3.2	3.8	3.6	5.7	4.6
Shenandoah Sport	4.1	3.2	3.6	3.4	5.2	4.3
Matador GT	3.9	2.6	3.3	4.0	4.3	4.2
Kentucky 31	2.0	2.0	2.0	4.3	4.2	4.2
<b>LSD (0.05)</b>	<b>0.6</b>	<b>1.4</b>	<b>0.8</b>	<b>2.1</b>	<b>1.4</b>	<b>1.3</b>
<b>CV (%)</b>	<b>7.1</b>	<b>19.6</b>	<b>10.7</b>	<b>23.6</b>	<b>14.2</b>	<b>14.0</b>

<sup>1</sup>9 = ideal; <sup>2</sup>9 = no disease

2 lb N/1000 ft<sup>2</sup> applied in 2013; irrigated to prevent drought stress

Table 11. Mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2010 near Rolesville, NC and maintained at a 2" mowing height.

Entry	Turf Quality				Brown Patch		
	2011	2012	2013	Mean	2011	2013	Mean
Saltillo	5.6 <sup>1</sup>	6.2	6.2	6.0	8.0 <sup>2</sup>	7.0	7.5
Inspiration	3.3	3.3	4.4	3.7	5.8	6.7	6.2
Gazelle II	4.8	3.8	3.6	4.1	6.6	5.3	6.0
Virtue II	4.2	4.1	4.1	4.1	6.8	5.0	5.9
Jaguar 3	3.8	2.4	2.6	2.9	6.3	4.7	5.5
Grande II	4.7	3.4	4.3	4.2	4.8	6.0	5.4
Matador GT	3.9	3.3	3.7	3.6	5.1	5.7	5.4
Shenandoah Sport	3.9	3.7	3.4	3.7	5.4	5.3	5.4
Coyote II	3.4	2.3	3.1	2.9	4.8	5.7	5.3
Rebel Advance	3.4	2.4	3.4	3.1	5.8	4.7	5.3
Tar Heel II	4.0	3.8	4.9	4.2	5.7	5.0	5.3
Greenkeeper WAF	3.6	2.0	2.9	2.8	5.0	5.3	5.2
Wolfpack	3.5	2.2	3.1	2.9	4.8	5.7	5.2
Faith	3.4	1.9	3.1	2.8	5.9	4.3	5.1
Finelawn	4.1	2.5	3.4	3.3	4.8	5.3	5.1
Bar Robusto	3.4	2.6	3.6	3.2	4.6	5.0	4.8
Wolfpack II	4.3	2.7	3.6	3.5	4.5	5.0	4.8
Innovator	3.6	2.6	3.7	3.3	4.8	4.7	4.7
Dynamic II	4.2	2.2	2.9	3.1	4.3	5.0	4.6
Brockton	3.2	2.3	3.0	2.8	3.7	5.0	4.3
Coronado TDH	3.5	2.6	3.7	3.2	4.2	4.3	4.3
Silverstar	3.5	1.7	2.1	2.4	3.5	5.0	4.3
Endeavor II	3.7	2.4	2.7	2.9	3.8	4.3	4.0
Fidelity	3.7	2.2	3.2	3.0	4.6	3.3	4.0
Falcon V	3.4	1.3	2.2	2.3	4.7	3.0	3.8
Kentucky 31	1.8	1.5	1.8	1.7	2.4	4.0	3.2
<b>LSD (0.05)</b>	<b>0.9</b>	<b>1.1</b>	<b>1.2</b>	<b>0.9</b>	<b>1.9</b>	<b>1.6</b>	<b>1.2</b>
<b>CV (%)</b>	<b>14.1</b>	<b>19.9</b>	<b>18.1</b>	<b>14.6</b>	<b>20.9</b>	<b>19.2</b>	<b>14.2</b>

<sup>1</sup>9 = ideal; <sup>2</sup>9 = no disease

2 lb N/1000 ft<sup>2</sup> applied in 2013; irrigated to prevent drought stress

Table 12. 2013 mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2012 (Blk 10) near Hubbard, OR.

Entry	Mean
Cumberland	6.6 <sup>1</sup>
Endeavor II	6.5
RainDance	6.5
Firecracker	6.5
Fat Cat	6.5
Dynamic II	6.3
Falcon V	6.3
Gazelle II	6.3
Tarnation GT	6.3
Coronado TDH	6.3
Mustang 4	6.3
Tulsa Time	6.1
Faith	6.1
Raptor II	6.1
Crackle	6.1
Saltillo	5.8
Titanium	5.7
Inspiration	5.7
Shenandoah Elite	5.7
2 <sup>nd</sup> Millennium	5.5
Crossfire 3	5.4
Tar Heel II	5.2
Coyote II	5.2
Speedway	5.1
Damzelle	5.1
Tar Heel	5.0
Shenandoah Sport	4.9
Virtue II	4.7
Kentucky 31	2.9
<b>LSD (0.05)</b>	<b>1.1</b>
<b>CV (%)</b>	<b>10.8</b>

<sup>1</sup>9 = ideal

Table 13. 2013 mean percentage survival for tall fescue entries placed in a greenhouse salt bath at 20 ppt NaCl on 23 December 2012.

Entry	26 July	15 Aug
RainDance	85.7	61.3
Endeavor II	72.3	55.4
Coronado TDH	49.1	53.6
Cumberland	67.9	53.6
Tar Heel II	71.4	52.7
Inspiration	73.2	50.0
Saltillo	60.7	46.4
Tarnation GT	63.4	46.4
Dynamic II	39.3	33.9
Duration	45.5	32.1
PST-5SXD	27.9	15.3
<b>LSD (0.05)</b>	<b>29.7</b>	<b>27.4</b>
<b>CV (%)</b>	<b>36.8</b>	<b>47.5</b>

Table 14. Mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2011 (Blk 10) near Hubbard, OR and maintained at a 1.25" mowing height.

Entry	Drought 12 Aug 13	Turf Quality		
		2012	2013	Mean
Duration	5.0 <sup>1</sup>	6.5 <sup>2</sup>	5.8	6.1
Raptor II	4.0	6.1	5.9	6.0
Shenandoah Elite	2.0	6.3	5.7	6.0
Deputy	3.0	6.4	5.4	5.9
Fat Cat	2.7	6.0	5.7	5.8
Crossfire 3	2.3	5.8	5.7	5.7
Falcon V	2.7	6.0	5.4	5.7
Tarnation GT	4.3	5.7	5.7	5.7
Saltillo	3.3	5.4	5.8	5.6
Gazelle II	4.0	5.7	5.4	5.6
Dynamic II	1.3	6.0	5.1	5.5
Firecracker LS	1.7	6.2	4.8	5.5
Matador	4.7	5.8	5.3	5.5
Mustang 4	3.0	5.9	5.1	5.5
Titanium	3.3	6.1	5.0	5.5
Tulsa Time	5.0	5.6	5.3	5.5
Wolfpack II	3.3	5.8	5.1	5.5
RainDance	5.7	5.5	5.2	5.4
Innovator	2.3	5.6	4.9	5.3
Inspiration	4.7	5.3	5.3	5.3
Cumberland	4.3	5.1	5.2	5.2
Apache III	3.0	5.1	5.2	5.2
Speedway	3.3	5.1	5.1	5.1
Shenandoah Sport	3.3	5.0	4.8	4.9
Endeavor II	2.0	5.4	4.2	4.8
Fury	3.0	4.8	4.9	4.8
Silverstar	3.7	5.2	4.4	4.8
Tar Heel II	4.0	4.8	4.9	4.8
Virtue II	3.7	5.0	4.7	4.8
Coronado Gold	5.7	4.3	5.1	4.7
Coronado TDH	5.0	4.5	4.7	4.6
Coyote II	1.7	5.1	3.4	4.3
Kentucky 31	4.0	2.8	2.9	2.8
<b>LSD (0.05)</b>	<b>1.8</b>	<b>0.7</b>	<b>1.0</b>	<b>0.7</b>
<b>CV (%)</b>	<b>27.3</b>	<b>8.2</b>	<b>12.0</b>	<b>8.0</b>

<sup>1</sup>9 = no drought stress; <sup>2</sup>9 = ideal

3 lb N/1000 ft<sup>2</sup> applied in 2013; no supplemental irrigation applied



Table 15. 2012 drought ratings for entries in a tall fescue turf trial seeded fall of 2011 (Blk 10) near Hubbard, OR, maintained at a 1.25" mowing height and evaluated using digital image analysis.

Entry	% Green Cover									
	02 Aug 19 days (3.05" ET)	14 Aug 28 days (5.33" ET)	27 Aug 44 days (7.27" ET)	03 Sep 51 days (8.24" ET)	10 Sep 58 days (9.15" ET)	14 Sep 62 days (9.64" ET)	21 Sep 69 days (10.38" ET)	28 Sep 76 days (11.05" ET)	08 Oct 88 days (12.17" ET)	12 Oct 90 days (12.26" ET)
Coronado Gold	96.8	93.3	83.1	78.8	75.7	71.1	65.4	64.0	62.0	55.7
Coronado TDH	97.3	94.1	81.8	83.2	76.6	70.9	62.6	61.7	61.0	52.6
Shenandoah Elite	98.1	95.4	84.8	82.2	74.8	71.4	56.7	58.4	54.9	45.0
Matador	97.5	94.0	83.2	80.1	75.5	67.4	65.9	61.1	57.7	44.7
<b>Saltillo</b>	<b>98.2</b>	<b>96.5</b>	<b>84.8</b>	<b>82.5</b>	<b>78.2</b>	<b>66.0</b>	<b>61.4</b>	<b>60.8</b>	<b>55.7</b>	<b>43.0</b>
Raptor II	97.8	95.1	83.4	74.6	68.1	59.1	54.5	52.2	48.6	41.5
Speedway	97.7	95.1	75.9	74.4	71.3	55.8	52.7	61.4	55.5	41.0
Apache III	96.4	93.0	77.8	75.9	72.7	60.6	57.8	50.1	49.9	40.9
Wolfpack II	97.7	95.5	82.7	76.3	70.3	65.4	53.9	55.1	49.2	39.5
Fury	96.8	91.5	78.0	72.5	67.0	55.0	53.4	53.1	48.9	39.4
RainDance	98.3	95.8	82.6	80.5	72.4	65.4	51.3	54.3	47.3	38.6
Tulsa Time	97.4	94.3	76.8	70.8	73.6	61.4	63.5	59.6	53.4	36.6
Cumberland	98.4	95.5	86.6	81.6	72.8	59.1	57.9	50.4	47.5	36.3
Tarnation GT	97.6	95.7	84.6	77.8	69.3	62.5	51.2	50.8	44.3	35.1
Coyote II	97.7	93.5	75.5	68.8	60.3	35.1	49.0	46.6	41.3	34.3
Kentucky 31	97.2	93.9	81.6	72.0	60.8	56.4	50.8	48.7	47.7	34.1
Mustang 4	97.9	95.0	82.5	72.8	62.5	56.2	46.4	45.4	42.2	33.9
Virtue II	97.4	91.1	71.4	63.4	58.7	54.0	43.7	44.9	40.0	33.8
Fat Cat	97.7	95.1	75.6	69.2	64.7	60.0	48.5	45.2	37.3	33.1
Titanium LS	98.3	96.3	82.1	71.3	66.7	54.7	57.1	51.4	48.8	32.4
Silverstar	97.1	93.6	73.8	63.1	56.5	47.6	41.1	41.2	37.2	32.1
Deputy	98.2	95.4	85.0	78.2	68.9	61.5	48.8	46.1	42.5	31.7
Gazelle II	98.4	95.9	81.4	74.1	63.6	50.9	46.9	42.1	40.6	30.9
Falcon V	98.0	92.6	74.9	65.9	59.6	49.2	45.2	40.0	42.8	29.8
Duration	97.5	92.9	75.0	66.8	53.5	47.4	38.9	41.7	39.1	29.7
Firecracker LS	97.6	94.6	74.0	65.1	61.6	43.8	46.1	38.6	37.3	28.2
5BAB	97.2	91.5	68.3	61.3	55.7	40.6	41.0	42.9	39.0	28.1
Tar Heel II	96.9	92.5	75.4	68.8	58.6	46.1	47.1	43.1	36.0	26.7
Crossfire 3	97.1	92.4	66.1	61.9	53.6	45.0	38.2	41.2	33.8	26.6
Shenandoah Sport	95.3	88.0	73.3	58.9	59.7	36.7	44.8	35.8	38.4	26.6
Endeavor II	92.6	88.5	64.7	63.3	48.8	31.0	39.3	33.6	34.3	26.2
Dynamic II	98.0	94.3	74.9	64.4	50.2	37.1	34.7	37.0	34.0	25.6
Inspiration	95.8	90.1	64.5	59.1	51.4	39.5	39.3	35.4	31.6	24.1
Innovator	97.5	91.8	68.8	58.4	52.2	38.5	34.8	32.3	29.0	22.1
<b>LSD (0.05)</b>	<b>1.6</b>	<b>3.5</b>	<b>10.4</b>	<b>12.1</b>	<b>15.3</b>	<b>18.6</b>	<b>16.1</b>	<b>16.6</b>	<b>15.6</b>	<b>12.7</b>
<b>CV (%)</b>	<b>1.0</b>	<b>2.3</b>	<b>8.0</b>	<b>10.2</b>	<b>14.5</b>	<b>20.7</b>	<b>19.8</b>	<b>21.0</b>	<b>21.5</b>	<b>22.4</b>

3 lb N/1000 ft<sup>2</sup> applied in 2012; 0.17" total precipitation 4 July – 11 Oct; Irrigation applied: 2" on 1 June and 2" on 14 July

Table 16. Mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2010 (Blk 10) near Hubbard, OR and maintained at a 1.25" mowing height.

Entry	2011	2012	2013	Mean
Wolfpack II	6.9 <sup>1</sup>	6.5	7.3	6.9
<b>Saltillo</b>	<b>6.1</b>	<b>6.5</b>	<b>6.8</b>	<b>6.4</b>
Gazelle II	6.3	6.0	7.0	6.4
Shenandoah Elite	6.2	5.6	7.3	6.4
Dynamic II	6.7	6.0	6.3	6.3
Falcon V	6.1	6.2	6.7	6.3
Cumberland	5.9	6.3	6.3	6.2
Innovator	6.8	5.6	6.3	6.2
Faith	6.3	5.3	6.7	6.1
Inspiration	6.5	5.4	6.0	6.0
Finelawn Xpress	6.3	5.4	5.8	5.9
Pedigree	6.3	5.7	5.7	5.9
Shenandoah Sport	5.9	5.5	6.3	5.9
Endeavor II	5.9	5.7	5.8	5.8
RainDance	5.7	6.1	5.5	5.8
Justice	5.7	5.6	5.8	5.7
Matador GT	6.0	5.4	5.7	5.7
Rebel Advance	5.9	5.4	5.5	5.6
Virtue II	5.3	5.3	6.0	5.6
Apache III	6.2	5.0	5.3	5.5
Matador	6.1	4.9	5.3	5.5
Silverado II	5.6	5.2	5.5	5.4
Coronado TDH	5.9	5.4	4.7	5.3
Tar Heel II	5.6	5.2	5.2	5.3
Greenkeeper WAF	5.5	5.3	5.0	5.2
Tar Heel	5.9	5.0	4.7	5.2
Silverstar	5.3	5.1	5.0	5.1
Tomahawk	5.4	5.1	5.0	5.1
Coronado Gold	5.6	5.0	4.3	5.0
Tarnation GT	4.9	5.1	5.0	5.0
Wolfpack	5.0	4.9	5.0	5.0
Coyote II	5.2	5.1	4.5	4.9
Damzelle	5.1	4.7	4.7	4.8
Endeavor	4.9	5.3	4.2	4.8
Olympic Gold	4.9	4.9	4.7	4.8
Kentucky 31	3.7	3.5	3.0	3.4
<b>LSD (0.05)</b>	<b>0.8</b>	<b>0.9</b>	<b>1.1</b>	<b>0.7</b>
<b>CV (%)</b>	<b>8.8</b>	<b>9.8</b>	<b>11.5</b>	<b>7.1</b>

<sup>1</sup>9 = ideal

3 lb N/1000 ft<sup>2</sup> applied in 2013; 1.5" irrigation applied 14 June; 0.09" precipitation during 15 June-22 Aug; 0.62" precipitation during 23 Aug-4 Sep

Table 17. 2013 mean drought ratings for entries in a tall fescue turf trial seeded fall of 2010 (Blk 10) near Hubbard, OR, maintained at a 2.0" mowing height and evaluated using digital image analysis.

Entry	% Green Cover										
	0 wk	4 wk	5 wk	6 wk	6.5 wk	7 wk	8.5 wk	9 wk	10 wk	11 wk	13 wk
Saltillo	99.6	97.9	96.7	95.9	83.3	87.6	69.2	52.6	43.0	63.2	57.9
RainDance	99.7	97.7	97.3	95.8	83.5	83.4	51.3	48.1	41.9	63.6	56.5
Tarnation GT	99.3	96.5	96.4	92.5	83.1	79.8	47.9	44.9	38.8	58.6	54.3
Kentucky 31	99.5	97.2	96.9	94.3	85.9	83.6	61.2	59.6	48.8	70.1	51.7
Cumberland	99.7	92.4	85.9	73.7	62.9	60.5	35.0	32.9	27.7	44.6	40.8
Damzelle	99.5	96.7	96.6	91.1	77.2	72.4	36.7	38.7	30.7	40.1	40.7
Debussey	99.5	96.9	96.9	93.2	81.0	75.6	46.3	44.8	37.4	49.0	40.3
Coronado Gold	99.5	95.9	92.4	84.5	62.6	54.8	36.7	30.5	26.8	41.5	38.1
Matador	99.1	94.3	88.5	70.7	56.9	53.6	31.6	28.8	23.2	34.8	33.7
Wolfpack	99.5	97.2	94.7	83.3	59.5	48.0	24.1	20.6	16.8	26.2	24.9
Endeavor	99.4	93.7	87.2	68.4	51.8	45.1	23.4	22.5	15.2	22.1	24.6
Endeavor II	99.6	94.9	83.8	67.3	56.1	47.0	28.8	24.1	16.0	26.6	23.9
Shenandoah Elite	99.5	97.0	94.5	80.9	55.0	49.7	19.6	17.3	13.0	20.5	23.4
Gazelle II	99.5	96.7	88.7	69.8	46.6	43.7	17.0	16.7	11.8	19.7	21.4
Shenandoah Sport	99.5	96.8	94.5	79.5	54.8	45.1	12.6	14.2	11.2	18.5	18.8
Tar Heel	99.3	90.0	77.9	57.8	38.5	28.4	13.5	14.5	10.7	20.5	18.2
Justice	99.5	95.5	88.4	73.5	41.7	36.6	12.3	12.7	9.8	17.0	18.0
Silverstar	99.4	92.0	79.1	60.7	42.9	37.2	20.1	14.6	11.9	18.2	17.5
Dynamic II	99.6	95.8	87.8	63.1	38.7	34.4	11.3	10.2	7.3	15.7	17.0
Apache III	99.5	95.8	88.1	73.6	48.2	37.5	12.4	14.0	10.1	17.1	16.8
Coyote II	99.3	95.0	88.2	69.5	43.4	33.2	12.5	9.9	8.6	15.4	14.8
Inspiration	99.4	96.9	93.4	73.8	50.2	46.6	17.0	13.4	9.9	14.4	14.3
Matador GT	99.5	95.7	94.0	78.6	58.7	42.2	12.6	9.7	7.9	16.2	13.5
Finelawn Xpress	99.5	94.9	85.0	60.9	37.3	28.7	6.3	6.9	5.6	11.8	12.8
Faith	99.5	96.5	89.2	64.4	35.5	26.6	6.5	8.2	6.1	9.5	11.7
Olympic Gold	99.5	96.4	90.8	71.7	49.9	36.7	12.1	11.1	8.0	15.7	11.0
Silverado II	99.4	95.6	90.6	74.3	47.5	41.1	12.4	9.7	6.7	8.9	10.9
Virtue II	99.6	96.5	91.1	73.6	49.5	39.8	13.4	8.7	6.0	11.7	10.6
Wolfpack II	99.5	94.9	78.4	52.6	29.6	23.4	7.0	5.8	5.6	8.4	10.5
Pedigree	99.5	96.1	90.2	68.3	38.1	28.5	7.2	6.4	5.4	7.6	8.9
Coronado TDH	99.3	94.0	86.1	67.4	36.2	30.7	9.0	6.9	4.0	8.4	8.8
Tomahawk	99.4	92.9	73.6	54.0	23.7	19.5	5.3	5.5	4.1	7.7	8.4
Greenkeeper WAF	99.4	95.8	87.5	60.8	30.8	25.4	6.0	5.8	3.6	7.8	7.9
Falcon V	99.5	96.7	84.8	60.5	32.6	24.7	5.6	3.1	2.5	5.9	7.0
Rebel Advance	99.3	95.6	88.1	68.9	28.4	19.9	8.0	5.7	3.1	6.0	6.1
Tar Heel II	99.4	94.2	75.5	44.5	24.0	8.3	4.0	3.4	2.9	4.9	6.1
Innovator	99.4	96.7	88.8	56.8	37.2	20.7	3.5	4.2	2.5	4.5	6.0
LSD (0.05)	0.2	4.0	11.9	21.8	29.6	27.3	22.2	20.8	17.9	23.4	21.3
CV (%)	0.1	2.6	8.1	17.4	32.6	33.6	51.8	54.9	59.1	48.5	47.3

3 lb N/1000 ft<sup>2</sup> applied in 2013; 1.5" irrigation applied 14 June; 0.09" precipitation during 15 June-22 Aug; 0.62" precipitation during 23 Aug-4 Sep

Table 18. 2012 mean drought stress ratings for entries in a tall fescue turf trial seeded fall of 2010 (Blk 10) near Hubbard, OR, maintained at a 1.25" mowing height and evaluated using digital image analysis.

Entry	% Green Cover												Recovery
	1 wk	2 wk	3 wk	4 wk	5 wk	6 wk	7.5 wk	8 wk	9 wk	9.5 wk	9.75 wk	10.5 wk	11 wk
Debussey	96.0	95.5	94.1	96.0	94.1	87.7	51.4	46.0	46.0	47.4	43.0	32.1	57.3
Salttillo	97.9	95.4	92.9	95.9	94.1	82.9	54.2	49.0	39.0	40.2	38.1	27.4	56.8
Silverstar	97.4	96.4	92.5	94.8	87.2	80.2	51.2	40.6	33.1	27.0	33.5	25.5	45.5
RainDance	97.6	95.4	93.1	96.5	94.1	87.3	48.6	43.8	49.8	45.3	42.6	23.4	70.5
Kentucky 31	97.0	95.0	92.9	94.7	87.1	76.2	40.9	32.7	34.4	27.4	26.0	21.0	54.2
Endeavor	97.2	96.3	93.8	95.5	91.0	79.4	46.7	37.4	40.0	29.8	29.0	20.2	52.8
Olympic Gold	97.0	95.3	91.9	94.1	85.3	73.1	39.7	35.1	32.9	25.8	23.2	18.9	44.4
Coronado TDH	97.6	95.9	93.8	94.9	89.7	73.6	42.9	35.8	29.6	27.2	22.5	17.5	44.2
Damzelle	96.8	94.9	93.1	95.1	91.2	78.5	41.2	32.0	34.2	24.9	19.3	14.9	45.6
Tarnation GT	93.8	91.5	87.1	93.6	86.3	78.1	46.9	29.6	31.3	33.3	28.3	14.7	55.7
Endeavor II	97.4	95.0	89.9	94.0	84.4	75.3	39.9	29.2	28.8	23.2	20.4	14.5	40.7
Coronado Gold	93.6	93.8	82.5	90.8	78.0	58.3	36.7	29.9	29.1	24.0	20.5	13.7	38.1
Matador	94.6	93.1	82.2	82.1	86.5	66.7	26.4	24.4	25.8	16.4	18.6	13.5	33.6
Wolfpack	97.4	96.4	94.0	94.8	85.8	79.2	42.7	36.6	25.5	22.1	20.4	13.3	40.6
Coyote II	97.8	96.4	92.7	96.5	89.0	72.9	37.9	28.5	29.3	19.6	17.5	12.9	43.5
Cumberland	95.4	92.4	79.0	89.4	88.4	69.3	39.4	23.8	25.1	20.4	18.8	12.1	44.2
Tar Heel	96.5	94.8	85.1	88.1	79.3	53.8	24.9	17.6	19.8	14.6	14.3	11.2	35.2
Shenandoah Sport	97.1	95.1	90.5	94.0	82.7	65.6	28.7	21.5	20.6	15.6	13.2	10.5	35.1
Virtue II	96.9	96.0	94.7	95.8	87.3	61.5	25.6	21.1	19.8	14.1	19.1	9.6	36.7
Silverado II	95.4	95.2	90.7	91.5	75.1	57.6	23.9	20.0	21.0	8.2	9.1	9.6	32.4
Inspiration	97.1	95.4	90.1	94.3	82.8	66.6	33.1	21.0	22.5	17.0	16.5	8.9	38.1
Apache III	97.4	95.7	90.2	93.0	76.4	61.9	25.1	22.0	22.1	15.7	13.7	8.9	29.4
Pedigree	97.1	96.5	92.8	94.1	82.8	66.8	27.1	21.9	19.7	13.6	12.2	8.6	32.2
Innovator	97.5	95.9	93.2	94.3	87.3	61.1	28.5	21.2	19.9	15.0	12.2	8.0	26.5
Wolfpack II	97.4	96.5	93.8	94.3	84.6	66.0	23.1	18.2	17.2	14.1	13.4	7.9	28.8
Tar Heel II	97.3	95.6	87.8	94.5	79.5	59.6	23.8	17.5	18.1	12.6	13.2	7.5	33.1
Dynamic II	97.7	95.9	87.2	95.0	80.9	72.7	33.2	27.9	29.3	19.8	13.8	7.3	41.8
Matador GT	97.3	95.7	91.8	93.0	81.7	58.6	20.6	14.7	16.7	10.7	10.1	7.0	30.3
Greenkeeper WAF	96.7	96.6	92.5	95.4	70.1	56.2	21.7	17.8	16.8	11.8	12.3	6.7	30.5
Justice	96.4	95.3	86.9	90.0	72.9	56.2	17.5	19.3	17.8	11.1	13.1	6.3	27.1
Tomahawk	97.1	95.2	89.1	91.6	77.2	52.7	18.7	13.6	17.2	9.0	10.1	5.6	26.8
Gazelle II	98.2	95.1	86.7	90.0	72.3	56.1	27.5	19.6	20.0	12.5	11.8	5.2	21.8
Shenandoah Elite	98.1	96.8	89.9	89.4	79.9	54.8	21.7	15.9	14.1	9.0	7.5	4.2	15.6
Finelawn Xpress	97.2	94.8	90.3	91.8	70.2	39.8	16.2	10.0	11.0	8.6	6.9	4.1	20.0
Rebel Advance	96.9	96.0	94.3	95.1	82.8	62.2	17.6	18.6	15.6	13.7	9.8	3.6	20.4
Faith	97.8	97.0	92.3	89.3	59.5	33.5	7.8	5.9	4.4	3.0	3.1	2.3	10.9
Falcon V	97.8	96.5	94.5	93.0	67.7	39.5	9.7	6.2	7.3	3.1	3.5	2.0	12.1
<b>LSD (0.05)</b>	<b>1.8</b>	<b>2.5</b>	<b>10.7</b>	<b>7.1</b>	<b>15.6</b>	<b>23.1</b>	<b>20.2</b>	<b>18.0</b>	<b>16.3</b>	<b>16.5</b>	<b>14.2</b>	<b>12.6</b>	<b>19.8</b>
<b>CV (%)</b>	<b>1.2</b>	<b>1.6</b>	<b>7.3</b>	<b>4.6</b>	<b>11.3</b>	<b>20.1</b>	<b>33.5</b>	<b>37.4</b>	<b>34.4</b>	<b>43.0</b>	<b>39.7</b>	<b>52.2</b>	<b>27.8</b>

Drought stress initiated 3 July 2012; 2" irrigation applied after 10.5 wk, on 14 Sep; 3.18 lb N/1000ft<sup>2</sup> applied during 2012

Table 19. 2013 mean drought stress ratings for entries in a tall fescue turf trial seeded fall of 2012 near Riverside, CA and evaluated using digital image analysis.

Entry	Drought % Green Cover							Recovery % Green Cover		
	15 Aug	19 Aug	21 Aug	23 Aug	26 Aug	28 Aug	30 Aug	03 Sep	06 Sep	13 Sep
Crackle	94.0	94.1	93.7	87.3	72.9	74.6	66.1	79.6	86.8	87.2
RainDance	92.5	94.4	91.8	84.5	65.4	66.2	63.8	75.7	78.2	77.1
Virtue II	88.7	93.6	90.9	84.7	68.4	68.8	66.1	77.3	79.3	85.3
Tarnation GT	92.5	95.0	92.8	86.6	71.1	62.9	62.5	73.3	66.5	78.6
Saltillo	91.2	94.1	91.3	84.7	63.7	60.9	52.8	62.9	65.7	78.0
Inspiration	90.7	92.8	87.8	81.0	58.9	57.6	52.1	62.7	60.2	74.5
Cumberland	88.6	91.4	89.7	81.3	59.6	50.1	44.2	59.2	63.5	68.3
2 <sup>nd</sup> Millennium	87.5	90.9	86.5	71.1	41.5	35.1	27.3	31.1	37.5	37.2
<b>LSD (0.05)</b>	<b>5.0</b>	<b>4.9</b>	<b>6.8</b>	<b>10.4</b>	<b>18.6</b>	<b>23.6</b>	<b>29.8</b>	<b>31.4</b>	<b>31.5</b>	<b>30.9</b>
<b>CV (%)</b>	<b>4.0</b>	<b>3.8</b>	<b>5.4</b>	<b>9.0</b>	<b>20.8</b>	<b>27.4</b>	<b>37.5</b>	<b>33.8</b>	<b>32.9</b>	<b>29.7</b>

Table 20. 2013 mean initial heading dates for entries in a tall fescue seed yield trial seeded fall of 2012 (Blk 8) near Hubbard, OR.

Entry	Mean
Virtue II	01 May
Gazelle II	01 May
Cumberland	30 April
Inspiration	30 April
Saltillo	29 April
Dynamic II	29 April
RainDance	29 April
Tar Heel II	27 April
Kentucky 31	23 April
<b>LSD (0.05)</b>	<b>2 days</b>
<b>CV (%)</b>	<b>0.9</b>

Table 21. 2013 mean stem rust ratings for entries in a tall fescue seed yield trial seeded fall of 2012 (Blk 8) near Hubbard, OR.

Entry	Mean
Virtue II	7.3 <sup>1</sup>
RainDance	6.7
Saltillo	6.3
Tar Heel II	6.0
Kentucky 31	6.0
Endeavor II	6.0
Cumberland	5.7
Dynamic II	5.7
Gazelle II	5.3
Tarnation GT	4.7
Coronado TDH	4.3
Inspiration	4.0
PST-5YMY	3.7
<b>LSD (0.05)</b>	<b>1.4</b>
<b>CV (%)</b>	<b>15.7</b>

<sup>1</sup>9 = no disease

Table 22. 2013 mean seed yields for entries in a tall fescue seed yield trial seeded fall of 2012 (Blk 8) near Hubbard, OR.

<b>Entry</b>	<b>Mean (lb/A)</b>
Saltillo	2146.4
Cumberland	1982.4
Endeavor II	1946.6
Virtue II	1901.4
Dynamic II	1894.7
Tarnation GT	1829.0
RainDance	1759.2
Inspiration	1717.6
Gazelle II	1623.0
Tar Heel II	1569.3
Coronado TDH	1523.7
Kentucky 31	1039.7
PST-5A4S	964.2
<b>LSD (0.05)</b>	<b>578.0</b>
<b>CV (%)</b>	<b>19.7</b>



## THE FOUNDATION OF EXCELLENCE

A research first approach of perfecting turfgrass performance.

### Variety information

**Description:**

Salttillo tall fescue was developed by Pure-Seed Testing, Inc. It is a dark green cultivar with excellent summer turf performance. Salttillo was selected for salt tolerance and brown patch resistance. Salttillo has very good heat tolerance and resistance to brown patch, gray leaf spot, net blotch, stem rust, and crown rust..

**Applications:**

Salttillo is adapted for lawns, golf course roughs, cemeteries, parks, sod production, sports fields, roadsides and slope stabilization. Its drought tolerance makes Salttillo especially well-suited for residential or commercial lawns and low-maintenance turf areas. Salttillo performs well in sun or shade

**Geographical Adaption:**

Salttillo performs well in the Transition Zone and temperate climates. It is adapted to a wide range of soil types and pH. Recommended seeding rate is 5-8 lb/1000 ft<sup>2</sup> (245-390 kg/ha). Fertilize at 3-5 lb N/1000 ft<sup>2</sup>/yr (145-245 kg/ha); mow at 1.5-3.0" (4-8 cm); irrigate deeply and infrequently.

#### PRODUCT FEATURES

Brown Patch	● ● ● ● ●
Heat Tolerance	● ● ● ● ●
Wear Tolerance	● ● ● ● ●
Salt Tolerance	● ● ● ● ●
Drought Tolerance	● ● ● ● ●
Seeding Rate	5-8 lbs /1000sq. ft (245-390 kg/ha)





## THE FOUNDATION OF EXCELLENCE

A research first approach of perfecting turfgrass performance.

### Variety information

**Description:**

Rain Dance tall fescue was developed by Pure-Seed Testing, Inc. It is a dark green cultivar that was selected for salt tolerance. Rain Dance has shown excellent drought tolerance and summer turf performance. Rain Dance is tolerant to brown patch, gray leaf spot, net blotch, stem rust, and crown rust.

**Applications:**

Rain Dance is adapted for lawns, golf course roughs, cemeteries, parks, sod production, sports fields, roadsides and slope stabilization. Its drought tolerance makes Rain Dance especially well-suited for residential or commercial lawns and low-maintenance turf areas. RainDance performs well in sun or shade.

**Geographical Adaption:**

Rain Dance performs well in the Transition Zone and temperate climates. It is adapted to a wide range of soil types and pH. Recommended seeding rate is 5-8 lb/1000 ft<sup>2</sup> (245-390 kg/ha). Fertilize at 3-5 lb N/1000 ft<sup>2</sup>/yr (145-245 kg/ha); mow at 1.5-3.0" (4-8 cm); irrigate deeply and infrequently.

PRODUCT FEATURES	
Brown Patch	● ● ● ● ●
Heat Tolerance	● ● ● ● ●
Wear Tolerance	● ● ● ● ●
Salt Tolerance	● ● ● ● ●
Drought Tolerance	● ● ● ● ●
Seeding Rate	5-8 lbs /1000sq. ft (245-390 kg/ha)



2022 mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2021 near Rolesville, NC and maintained at a 2.0" mowing height.

Entry	Turf Quality thru June	Brown Patch Mean	Gray Leaf Spot + Brown Patch Aug
PST-5MCMO	5.0 <sup>1</sup>	7.6 <sup>2</sup>	7.0 <sup>2</sup>
<b>Saltillo [RYDER CUP 2023]</b>	<b>5.0</b>	<b>7.6</b>	<b>6.0</b>
<b>Tar Heel II</b>	<b>3.8</b>	<b>8.2</b>	<b>5.8</b>
Gro-Pro	4.9	7.7	5.8
PST-5TRN	5.2	7.8	5.8
<b>Cumberland</b>	<b>4.8</b>	<b>7.5</b>	<b>5.5</b>
<b>Sungold GLX (33% ea. Lifeguard, GLX Aced, GLX Star)</b>	<b>5.4</b>	<b>7.6</b>	<b>5.5</b>
PST-5CHWM	5.8	8.4	5.3
GLX Revive	5.3	7.3	5.3
<b>Moondance GLX</b>	<b>5.0</b>	<b>7.8</b>	<b>5.0</b>
Tall Boy	5.9	7.8	5.0
Hellcat GLR	4.4	7.1	5.0
<b>GLX Aced</b>	<b>5.1</b>	<b>7.3</b>	<b>4.8</b>
<b>Sungold RST Tirem (30% ea. Saltillo, Lifeguard, RainDance; 10% Tirem)</b>	<b>5.0</b>	<b>7.0</b>	<b>4.8</b>
<b>Lifeguard</b>	<b>5.6</b>	<b>7.8</b>	<b>4.5</b>
<b>Sungold TWCA 2 (33% ea. Lifeguard, RainDance, Saltillo)</b>	<b>5.2</b>	<b>6.8</b>	<b>4.5</b>
PST-R5HD6	5.5	8.1	4.5
PST-520D	5.3	7.7	4.5
PST-5NOG	4.9	7.8	4.5
Water Saver Pro (50% Yellow Jacket coating; 20% ea. Barvado, Bearcat, 10% Barrington II)	3.9	6.9	4.5
Meridian	5.5	7.2	4.5
Easy Green	4.7	7.6	4.3
<b>GLX Star</b>	<b>5.8</b>	<b>6.0</b>	<b>4.3</b>
<b>Sungold TWCA 1 (33% ea. Lifeguard, Saltillo, Relentless)</b>	<b>5.0</b>	<b>7.2</b>	<b>4.0</b>
Firecracker SLS	5.7	7.2	4.0
PST-5BP21	5.6	7.2	4.0
Monument	5.1	7.0	4.0
Oriole	5.8	6.9	4.0
Fury	4.6	5.3	4.0
Titan Ultra	3.0	6.8	3.8
Paramount	5.6	7.1	3.5
Top Choice TF Blend (33% ea. Valkyrie LS, Spyder LS, Avenger II)	5.7	7.0	3.5
PST-5CHWT	5.6	6.9	3.5
PST-5FOE	5.0	6.6	3.5
Rendition	5.6	6.5	3.3
Traverse 2 SRP	5.5	7.0	3.3
Knox	5.5	6.9	3.0
PST-5GQ	5.2	6.9	3.0
PST-5HAF9	4.9	6.4	3.0
PST-5DC320	4.3	6.2	3.0
<b>Sun Fire</b>	<b>5.5</b>	<b>4.5</b>	<b>2.8</b>
<b>Pro Gold</b>	<b>4.6</b>	<b>6.2</b>	<b>2.8</b>
Picabú	3.1	5.5	2.8
PST-5VFD	5.3	4.9	2.8
Summer	4.8	4.8	2.5
Turfsaver RTF (29% ea. Barvado, Barrington II, Barmesh RTF; 9.8% Barrepair)	3.8	3.6	2.5
RGT Nuance	2.9	3.7	2.5
<b>Gazelle II</b>	<b>4.6</b>	<b>6.0</b>	<b>2.3</b>
<b>RainDance [RYDER CUP 2023]</b>	<b>4.6</b>	<b>5.8</b>	<b>2.3</b>
Safeguard	5.3	6.0	2.3
Wolfpack III	5.4	5.8	2.3
Carolina Brand All Purpose Blend (34% Falcon II; 32% ea. Petite and Chinook)	3.7	3.9	2.0
Kentucky 31	2.1	2.8	2.0
Dixie Green (36% Garrison; 29% Rhizing Star; 21% Cayenne; 14% Venture)	4.3	4.6	1.8
PST-5LSS	5.2	5.9	1.3
Forlane	3.2	3.9	1.0
Macumba	3.2	3.7	1.0
Bachata	3.1	2.6	1.0
<b>LSD (0.05)</b>	<b>0.8</b>	<b>1.8</b>	<b>2.3</b>
<b>CV (%)</b>	<b>12.4</b>	<b>20.5</b>	<b>46.0</b>

<sup>1</sup>9 = ideal; <sup>2</sup>9 = no disease

4 lb N/1000 ft<sup>2</sup> applied in 2022; irrigated to prevent drought stress

Entries highlighted in green are available from Pure Seed; Pure Seed entries highlighted in orange are TWCA qualified

Highlighted means are in top statistical group

2022 mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2021 (Blk 10) near Hubbard, OR and maintained at a 1.25" mowing height.

Entry	Mean
PST-5DC320	7.5 <sup>1</sup>
PST-5LSS	7.4
PST-5CHWM	7.3
<b>Lifeguard</b>	7.1
PST-5BP21	7.1
PST-5HAF9	7.1
Safeguard	7.1
Tall Boy	7.1
<b>Sungold TWCA 2</b> (33% ea. Lifeguard, RainDance, Saltillo)	7.0
<b>Gazelle II</b>	6.9
<b>Pro Gold</b>	6.9
PST-5VFD	6.9
Traverse 2 SRP	6.9
Oriole	6.8
<b>GLX Aced</b>	6.7
<b>Sun Fire</b>	6.7
Firecracker SLS	6.7
GLX Revive	6.7
<b>Relentless</b>	6.6
<b>Sungold GLX</b> (33% ea. Lifeguard, GLX Aced, GLX Star)	6.6
<b>GLX Star</b>	6.6
PST-5CHWT	6.6
PST-5MCMO	6.6
PST-5NOG	6.6
PST-R5HD6	6.6
Wolfpack III	6.6
<b>Saltillo [RYDER CUP 2023]</b>	6.5
PST-5FOE	6.5
PST-5GQ	6.5
PST-5T24	6.5
Gro-Pro	6.5
Hellcat GLR	6.5
Knox	6.5
Monument	6.5
Rendition	6.5
<b>RainDance [RYDER CUP 2023]</b>	6.4
<b>Moondance GLX</b>	6.4
PST-5TRN	6.4
Meridian	6.4
PST-5MINI	6.3
<b>Cumberland</b>	6.3
<b>Sungold RST Tirem</b> (30% ea. Saltillo, Lifeguard, RainDance; 10% Tirem)	6.1
Dixie Green (36% Garrison; 29% Rhizing Star; 21% Cayenne; 14% Venture)	6.1
Fury	6.0
Easy Green	5.9
<b>Sungold TWCA 1</b> (33% ea. Lifeguard, Saltillo, Relentless)	5.8
Summer	5.8
<b>Tar Heel II</b>	5.7
<b>Coronado TDH</b>	5.4
Macumba	5.4
RGT Nuance	5.4
Bachata	5.2
Forlane	5.2
Turfsaver RTF (29% ea. Barvado, Barrington II, Barmesh RTF; 9.8% Barrepair)	4.9
Titan Ultra	4.3
Kentucky 31	3.3
<b>LSD (0.05)</b>	<b>0.7</b>
<b>CV (%)</b>	<b>6.9</b>

<sup>1</sup>9 = ideal; 5 lb N/1000 ft<sup>2</sup> applied in 2022; irrigated to prevent drought stress

Entries highlighted in **green** are available from Pure Seed

Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

Mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and maintained at a 1" mowing height.

Entry	2021	2022	Mean
PST-5HAF9	6.7	6.7	6.7
PST-5LSS	6.6	6.8	6.7
PST-5NOG	6.8	6.5	6.7
GLX Revive	6.3	6.4	6.6
PST-5GQ	6.7	6.4	6.6
PST-5LOD	6.5	6.2	6.3
PST-5MINI	6.2	6.4	6.3
Raptor III	6.5	6.2	6.3
PST-R5HD6	6.3	6.1	6.2
GLX Aced	5.7	6.4	6.1
GLX Star	5.9	6.4	6.1
PST-5DC320	5.7	6.3	6.0
PST-5FOE	5.8	6.2	6.0
Tall Boy	6.1	5.9	6.0
Traverse 2 SRP	5.7	6.3	6.0
Wolfpack III	6.0	6.0	6.0
Gazelle II	5.8	5.9	5.9
Sungold XPS TWCA (33% ea. Lifeguard, RainDance, Saltillo)	5.9	5.9	5.9
All Pro (33% ea. Zigzag, Renegade DT, Amity)	5.9	5.8	5.9
Duration	5.8	5.9	5.9
Gro-Pro	6.1	5.7	5.9
PST-5VFD	5.5	6.2	5.9
Sungold RST Tirem (30% ea. Lifeguard, RainDance, Saltillo; 10% Tirem)	5.7	5.8	5.8
Moondance GLX	5.8	5.8	5.8
Pro Gold	5.7	5.9	5.8
Oriole	5.9	5.7	5.8
PST-5MCMO	5.9	5.8	5.8
PST-5T24	5.6	5.9	5.8
Safeguard	5.8	5.9	5.8
Cumberland	5.6	5.7	5.7
Easy Green	5.9	5.6	5.7
Embrace	5.5	5.9	5.7
Firecracker SLS	5.7	5.8	5.7
Hellcat GLR	5.7	5.7	5.7
Triple Tall (33% ea. Zigzag, Renegade DT, Amity)	5.5	6.0	5.7
Sungold GLX (33% ea. Cumberland, GLX Aced, Lifeguard)	5.3	5.8	5.6
Sungold RST JS (30% ea. Lifeguard, RainDance, Saltillo; 10% Jump Start)	5.3	5.8	5.6
Monument	5.7	5.5	5.6
Summer	5.7	5.4	5.6
Valkyrie LS	5.3	5.8	5.6
Coronado TDH	6.0	4.9	5.5
2 <sup>nd</sup> Millennium	5.9	5.1	5.5
Endeavor II	5.4	5.4	5.4
Lifeguard	5.5	5.2	5.4
PST-5TRN	5.2	5.7	5.4
Saltillo [RYDER CUP 2023]	5.7	5.2	5.4
Sun Fire	5.6	5.1	5.3
Water Saver Pro (50% Yellow Jacket coating; 20% ea. Barvado, Bearcat, 10% Barrington II)	5.5	5.0	5.2
RainDance [RYDER CUP 2023]	5.3	4.8	5.1
Tar Heel II	4.9	5.3	5.1
Dixie Green (36% Garrison; 29% Rhizing Star; 21% Cayenne; 14% Venture)	5.2	4.9	5.1
Titan TLC	5.1	4.8	5.0
Titan Rx	4.9	4.8	4.9
Turf Saver RTF (29% ea. Barvado, Barrington II, Barmesh RTF; 9.8% Barrepair)	4.5	5.1	4.8
Kentucky 31	3.2	4.1	3.6
LSD (0.05)	1.0	0.6	0.7
CV (%)	10.5	6.7	7.1

<sup>1</sup>9 = ideal; 4 lb N/1000 ft<sup>2</sup> applied in 2022

Entries highlighted in green are available from Pure Seed

Pure Seed entries highlighted in orange are TWCA qualified

Highlighted means are in top statistical group

2022 mean drought and simulated football traffic stress ratings for entries in a tall fescue turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR, evaluated using digital image analysis and maintained at a 1" mowing height.

Entry	% Green Cover						
	Before Stress 15 July	Drought + 12 games 29 July	Drought + 18 games 05 Aug	29 July	Drought Stress 05 Aug	11 Aug	15 Aug
Oriole	95.4	69.5	26.5	83.9	60.6	56.0	42.0
PST-5LOD	94.4	54.9	22.2	83.9	60.6	61.9	40.6
PST-R5HD6	94.3	54.7	16.6	83.0	62.4	57.9	37.5
Water Saver Pro (50% Yellow Jacket coating; 20% ea. Barvado, Bearcat, 10% Barrington II)	92.7	67.6	29.2	84.3	61.5	54.0	37.4
PST-5NOG	95.1	59.4	18.3	82.3	57.6	48.7	35.6
All Pro (33% ea. Zigzag, Renegade DT, Amity)	93.9	70.2	33.0	79.1	56.0	48.1	34.2
Triple Tall (33% ea. Zigzag, Renegade DT, Amity)	93.9	62.1	20.7	82.1	58.0	50.8	33.7
PST-5LSS	96.7	64.9	18.4	81.6	53.2	47.7	33.6
PST-5HAF9	93.8	68.6	27.5	81.5	54.5	48.4	33.4
GLX Revive	94.1	57.9	19.8	80.0	55.5	52.8	31.4
<b>GLX Star</b>	<b>93.8</b>	<b>58.2</b>	<b>18.2</b>	<b>80.7</b>	<b>52.9</b>	<b>47.9</b>	<b>29.8</b>
PST-5T24	94.3	67.7	28.6	79.2	54.2	48.0	29.6
Firecracker LS	94.4	62.2	19.9	83.9	52.3	51.7	29.4
PST-5TRN	95.4	61.4	24.2	82.2	55.7	47.0	28.6
Hellcat GLR	93.7	53.6	17.6	81.2	50.9	49.7	28.2
<b>Sungold GLX</b> (33% ea. Cumberland, GLX Aced, Lifeguard)	<b>94.2</b>	<b>60.2</b>	<b>18.4</b>	<b>81.0</b>	<b>56.7</b>	<b>41.1</b>	<b>27.3</b>
<b>Sungold RST Tirem</b> (30% ea. Lifeguard, RainDance, Saltillo; 10% Tirem)	<b>94.2</b>	<b>55.2</b>	<b>16.5</b>	<b>74.6</b>	<b>46.5</b>	<b>43.2</b>	<b>26.3</b>
PST-5MINI	94.0	53.7	15.5	80.8	53.0	44.0	26.2
Tall Boy	95.4	53.8	13.1	76.2	44.8	41.4	25.8
Titan TLC	<b>92.3</b>	<b>61.8</b>	<b>21.0</b>	<b>74.9</b>	<b>46.3</b>	<b>38.7</b>	<b>25.7</b>
<b>Cumberland</b>	94.5	58.4	18.3	70.9	43.0	43.1	25.5
Gro-Pro	92.9	56.1	17.5	79.4	46.5	46.0	25.0
Titan Rx	92.0	51.9	15.4	76.0	47.0	41.7	25.0
Safeguard	92.9	58.1	24.4	76.6	47.1	36.6	24.5
Raptor II	94.7	58.6	18.7	74.4	44.0	37.3	24.2
PST-5GQ	94.2	46.3	11.5	73.8	43.1	40.9	23.9
Duration	93.9	57.6	23.2	70.8	45.3	38.2	23.4
PST-5MCMO	93.7	48.0	13.6	71.7	43.4	33.3	22.7
<b>Coronado TDH</b>	<b>91.5</b>	<b>59.3</b>	<b>21.0</b>	<b>76.6</b>	<b>44.3</b>	<b>36.8</b>	<b>22.5</b>
PST-5DC320	94.1	55.0	16.6	75.4	48.8	39.4	22.1
<b>GLX Aced</b>	<b>95.0</b>	<b>55.2</b>	<b>15.1</b>	<b>75.1</b>	<b>46.4</b>	<b>41.2</b>	<b>21.5</b>
<b>Tar Heel II</b>	<b>93.9</b>	<b>51.0</b>	<b>16.3</b>	<b>65.5</b>	<b>39.0</b>	<b>34.3</b>	<b>20.9</b>
Summer	92.0	41.7	11.5	72.2	43.7	37.7	20.9
Paramount	94.2	52.8	15.8	70.4	39.5	33.8	20.8
Easy Green	94.4	51.5	15.5	71.9	44.9	38.0	20.7
PST-5FOE	92.7	56.3	16.0	75.1	43.0	33.8	20.2
Turfsaver RTF (29% ea. Barvado, Barrington II, Barmesh RTF; 9.8% Barrepair)	92.3	56.6	17.0	75.9	45.6	40.7	19.8
2 <sup>nd</sup> Millennium	93.4	60.8	25.2	70.5	37.7	31.8	19.4

2022 mean drought and simulated football traffic stress ratings for entries in a tall fescue turf trial seeded fall of 2020 (Blk 4) near Hubbard, OR and evaluated using digital image analysis (Cont'd).

Entry	% Green Cover						
	Before Stress 15 July	Drought + 12 games 29 July	Drought + 18 games 05 Aug	29 July	Drought Stress 05 Aug	11 Aug	15 Aug
<b>Sungold XPS TWCA</b> (33% ea. Lifeguard, RainDance, Saltillo)	<b>93.5</b>	<b>52.9</b>	<b>13.7</b>	<b>72.3</b>	<b>39.6</b>	<b>37.9</b>	<b>19.3</b>
PST-5VFD	93.8	45.6	10.5	74.8	41.2	30.7	19.2
Wolfpack III	93.4	30.0	5.8	66.2	34.6	31.0	18.4
<b>Lifeguard</b>	<b>94.1</b>	<b>62.8</b>	<b>25.4</b>	<b>73.0</b>	<b>39.8</b>	<b>32.8</b>	<b>18.3</b>
Dixie Green (36% Garrison; 29% Rhizing Star; 21% Cayenne; 14% Venture)	92.8	51.7	15.0	74.4	42.9	34.7	18.3
<b>Sun Fire</b>	<b>93.5</b>	<b>58.1</b>	<b>18.7</b>	<b>72.9</b>	<b>43.1</b>	<b>32.0</b>	<b>18.1</b>
Embrace	93.6	69.4	27.8	73.5	38.9	27.0	17.9
<b>RainDance [RYDER CUP 2023]</b>	<b>93.9</b>	<b>53.0</b>	<b>15.5</b>	<b>66.3</b>	<b>37.8</b>	<b>28.3</b>	<b>17.6</b>
Traverse 2 SRP	93.5	55.5	16.8	67.8	34.6	27.6	17.0
<b>Sungold RST JS</b> (30% ea. Lifeguard, RainDance, Saltillo; 10% Jump Start)	<b>92.6</b>	<b>48.2</b>	<b>12.0</b>	<b>67.2</b>	<b>38.0</b>	<b>33.1</b>	<b>16.7</b>
Moondance GLX	93.8	53.7	16.6	66.8	36.0	26.2	15.6
<b>Gazelle II</b>	<b>92.8</b>	<b>66.0</b>	<b>18.7</b>	<b>65.6</b>	<b>32.6</b>	<b>26.7</b>	<b>14.2</b>
Pro Gold	94.8	62.7	23.2	64.2	35.1	22.6	14.2
<b>Endeavor II</b>	<b>91.7</b>	<b>47.4</b>	<b>11.6</b>	<b>62.5</b>	<b>32.1</b>	<b>27.0</b>	<b>14.0</b>
Valkyrie LS	94.3	54.2	15.1	67.4	35.8	24.3	12.9
<b>Saltillo [RYDER CUP 2023]</b>	<b>92.8</b>	<b>43.4</b>	<b>9.1</b>	<b>61.6</b>	<b>30.4</b>	<b>21.4</b>	<b>12.3</b>
Monument	94.2	52.4	12.8	66.0	34.5	24.9	11.8
Kentucky 31	85.9	42.6	12.0	51.9	25.9	20.4	10.2
<b>LSD (0.05)</b>	<b>2.3</b>	<b>14.7</b>	<b>12.1</b>	<b>12.5</b>	<b>17.2</b>	<b>17.9</b>	<b>16.2</b>
<b>CV (%)</b>	<b>1.5</b>	<b>16.1</b>	<b>41.0</b>	<b>10.4</b>	<b>23.0</b>	<b>27.6</b>	<b>40.7</b>

4 lb N/1000 ft<sup>2</sup> applied in 2022

Entries highlighted in **green** are available from Pure Seed

Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

Mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2019 (Blk 2) near Hubbard, OR and maintained at a 1" mowing height.

Entry	Spring Green-up	Billbug Damage		Turf Quality
	01 Mar 21	14 July 21	03 Aug 22	2020-22
PST-5LSS	6.7 <sup>1</sup>	9.0 <sup>2</sup>	6.3	7.6 <sup>3</sup>
PST-5HAF9	6.7	9.0	9.0	7.1
4 <sup>th</sup> Millennium	7.3	6.3	2.0	6.7
PST-R5HD6	6.7	9.0	9.0	6.7
PST-5VFD	6.3	8.7	7.0	6.6
GLX Revive	6.3	6.3	6.3	6.5
Safeguard	6.3	6.0	6.7	6.5
Meridian	6.0	4.7	3.3	6.4
PST-5MCMO	6.3	6.7	7.3	6.4
PST-5MINK	6.0	4.0	3.7	6.4
Raptor III	7.0	3.3	3.0	6.4
GLX Star	6.0	8.3	8.3	6.3
AP	6.0	8.0	5.7	6.3
PST-5GQ	5.7	7.3	5.7	6.3
Tall Boy	6.7	7.3	6.7	6.3
Lifeguard	6.0	6.7	7.3	6.2
Amarello	6.3	5.3	3.3	6.2
PST-5STAR	6.3	4.3	3.3	6.2
PST-5TRN	6.0	6.0	7.0	6.2
Traverse 2	7.0	3.3	2.3	6.2
Triple Tall (33% ea. Zigzag, Renegade DT, Amity)	6.7	7.0	5.7	6.2
Duration	5.7	5.0	3.3	6.1
Fury	7.0	6.0	5.7	6.1
Gro-Pro	6.0	5.7	4.7	6.1
Hellcat GLR	6.3	6.3	5.3	6.1
PST-5FOE	6.0	5.7	4.7	6.1
PST-5NOG	6.3	5.3	3.0	6.1
PST-5T24	6.3	6.3	5.0	6.1
Wolfpack III	5.7	2.7	3.3	6.1
Sungold XPS TWCA (33% ea. Saltillo, RainDance, Lifeguard)	5.7	7.3	6.3	6.0
Moondance GLX	6.7	4.3	6.0	6.0
Pro Gold	6.3	3.7	4.0	6.0
Oriole	7.0	5.3	5.7	6.0
Sungold GLX (33% ea. Tar Heel II, GLX Aced, Cumberland)	5.7	8.3	7.7	5.9
Dynamic II	6.3	3.7	3.0	5.9
PST-5LYM	5.3	5.0	4.3	5.9
PST-5MINI	6.3	5.7	5.3	5.9
GLX Aced	6.0	3.3	3.3	5.8
Relentless	6.3	5.7	5.7	5.8
Easy Green	5.3	5.3	6.7	5.8
Embrace	5.7	4.0	3.7	5.8

Mean turf performance ratings for entries in a tall fescue turf trial seeded fall of 2019 (Blk 2) near Hubbard, OR and maintained at a 1" mowing height (Cont'd).

Entry	Spring Green-up	Billbug Damage		Turf Quality
	01 Mar 21	14 July 21	03 Aug 22	2020-22
Swagger	5.7	6.0	5.0	5.8
<b>Endeavor II</b>	<b>5.7</b>	<b>4.0</b>	<b>4.0</b>	<b>5.7</b>
<b>Saltillo [RYDER CUP 2023]</b>	<b>6.0</b>	<b>3.0</b>	<b>4.0</b>	<b>5.7</b>
Valkyrie LS	6.7	4.3	3.0	5.7
<b>Tar Heel II</b>	<b>5.7</b>	<b>5.3</b>	<b>5.0</b>	<b>5.6</b>
Tarnation GT	4.7	5.7	5.0	5.6
<b>Cumberland</b>	<b>5.7</b>	<b>5.3</b>	<b>4.7</b>	<b>5.5</b>
<b>Gazelle II</b>	<b>6.0</b>	<b>5.0</b>	<b>5.0</b>	<b>5.5</b>
<b>RainDance [RYDER CUP 2023]</b>	<b>6.3</b>	<b>7.3</b>	<b>7.0</b>	<b>5.5</b>
Bearcat	5.3	7.3	4.3	5.5
Monument	6.3	5.0	4.0	5.5
PST-5ZIP	5.0	4.3	5.3	5.5
Inspiration	5.7	6.7	5.0	5.4
Water Saver Pro (50% Yellow Jacket coating; 20% ea. Barvado, Bearcat, 10% Barrington II)	5.3	7.3	5.7	5.4
<b>Sun Fire</b>	<b>6.0</b>	<b>6.0</b>	<b>5.7</b>	<b>5.3</b>
PST-5BGR	6.3	6.3	6.3	5.3
Turfsaver RTF (29% ea. Barvado, Barrington II, Barmesh RTF; 9.8% Barrepair)	5.0	7.7	5.3	5.1
PST-5BRK	5.3	4.3	4.7	5.0
Kentucky 31	4.0	6.7	7.0	3.4
<b>LSD (0.05)</b>	<b>1.0</b>	<b>1.9</b>	<b>1.7</b>	<b>0.4</b>
<b>CV (%)</b>	<b>10.6</b>	<b>20.1</b>	<b>20.4</b>	<b>4.6</b>

<sup>1</sup>9 = 100% green; <sup>2</sup>9 = no damage; <sup>3</sup>9 = ideal

4 lb N/1000 ft<sup>2</sup> applied in 2021; irrigated to prevent drought stress

Entries highlighted in **green** are available from Pure Seed

Pure Seed entries highlighted in **orange** are TWCA qualified

Highlighted means are in top statistical group

ATTACHMENT D

# SAMPLE INVOICE





Harrell's LLC  
PO Box 807  
Lakeland, FL 33802  
1-800-780-2774 option 3  
Fax: 1-863-904-1545  
E-mail: [creditar@harrells.com](mailto:creditar@harrells.com)

# INVOICE

INVOICE NUMBER	INVOICE DATE
INV01775084	07/06/2023
CUSTOMER NUMBER	TOTAL DUE
CITBIR1	\$366.68

**BILL TO:**

CITY OF BIRMINGHAM MICHIGAN  
851 S ETON ST  
BIRMINGHAM MI 48009-6870

**PAYMENT ADDRESS:**

Harrell's, LLC  
P O Box 935358  
Atlanta GA 31193-5358

DETACH UPPER PORTION AND RETURN WITH PAYMENT

PO NUMBER		TERMS	SALESPERSON	CUSTOMER NUMBER	INVOICE NUMBER	SHIP DATE
Brian		Net 30	228	CITBIR1	INV01775084	7/3/2023
QTY	ITEM	DESCRIPTION			UNIT PRICE	AMOUNT
4	MER2F1	Merit 2F 1gal. (HA) Not regulated by the DOT for ground transportation. If shipped otherwise, consult MSDS/SDS.			\$91.67	\$366.68

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**TERMS AND CONDITIONS**

I understand that Harrell's General Terms and Conditions of Sale, as they may be amended from time-to-time, (the "Terms and Conditions") are incorporated herein by reference as if fully set forth herein. The Terms and Conditions can be located on Harrell's website ([www.harrells.com](http://www.harrells.com)). In the event of a direct conflict between a specific term of this Invoice and the Terms and Conditions, the specific term of this Invoice shall prevail.

**SHIPPING ADDRESS**

Ship-to Acct Number: CITBIR1  
City of Birmingham Michigan  
Sprindale Gole Course  
316 Strathmore Rd.  
BIRMINGHAM, MI 48009  
United States of America

SUBTOTAL	\$366.68
TAX/STATE FEES	\$0.00
<b>TOTAL</b>	<b>\$366.68</b>

ATTACHMENT E

# SAMPLE OMNIA REPORT



Supplier Name:	Harrell's	Total Sales	\$127,686.32
Contract Number:	NI143184	Admin Fee %	3.00%
Reporting Period:	7/31/2023	Total Admin Fee	\$3,830.59

[illegible]

ATTACHMENT F

# SUSTAINABILITY POLICY



## CORPORATE SUSTAINABILITY POLICY

### I. Purpose and Scope

Harrell's, LLC employs this policy to define the fundamental principles for its commitment to the well-being of its employees, customers, communities, and the environment, uphold the Company's Core Values and Four Pillars, and comply with applicable law.

This policy applies to any and all employees, consultants, contractors, temporary employees, vendors, and agents of Harrell's.

### II. Policy

1. Harrell's, LLC is committed to Growing a Better World® through developing and commercializing products to reduce the environmental impact of the markets we serve. Harrell's® commitment to the environment is showcased in these ways:
  - a. Manufacturing and distributing of POLYON® Controlled Release Fertilizer, an industry-leading solution for lowering environmental nutrient pollution.
  - b. Educating end-users on best management practices to encourage efficient product use and reduce product waste.
  - c. Developing novel biostimulant technologies to enhance plant function in an environmentally sustainable way.
  - d. Membership in industry organizations such as Responsible Industry for a Sound Environment (RISE), The Fertilizer Institute (TFI), and The Environmental Institute for Golf, and the Lawn & Horticultural Products Work Group (LHPWG).
2. Harrell's, LLC is committed to conducting its operations with the highest level of integrity. As a part of this commitment, Harrell's strictly prohibits its employees, consultants, contractors, temporary employees, vendors, and agents from:
  - a. using any form of forced, indentured, or trafficked labor,
  - b. allowing any form of forced, indentured, or trafficked labor in their supply chains,
  - c. failing to pay their employees in amounts equal to or in excess of the applicable minimum wage rate,
  - d. destroying, concealing, or confiscating an employee's identity or immigration documents, such as passports or driver's licenses,
  - e. using recruiters that do not comply with local labor laws of the country in which the recruiting takes place, and
  - f. charging employees recruitment fees.





Moreover, Harrell's is committed to ensuring that its employees and all its subcontractors and agents are provided with safe and healthy workplaces in compliance with all local, state, and federal ordinances, laws, and regulations.

3. Harrell's, LLC operations teams practice sustainable manufacturing by producing products through economically sound processes that minimize negative environmental impacts while conserving energy and natural resources. A focus on increasing safety for employees, vendors, and local communities and the security of our product drives our sustainability efforts. Sustainable manufacturing includes:
  - a. Avoiding causing harm to the local environment
  - b. Reducing pollution and emissions
  - c. Cutting waste of raw materials and other resources
  - d. Reducing consumption of energy, water, and other limited substances
  - e. Increasing safety for workers and nearby communities
  - f. Protecting our products from misuse or divisive behavior

### III. Responsibilities

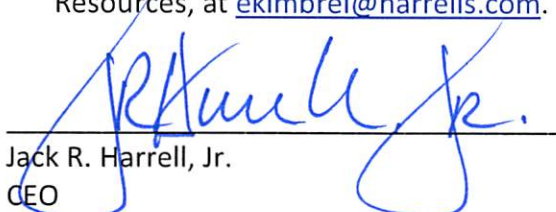
Harrell's, LLC's employees, consultants, contractors, temporary employees, vendors, and agents are responsible for understanding and complying with this Policy. Any violation or perceived violation of this Policy will be reported to a member of the Senior Leadership Team as soon as possible. It is the responsibility of the Senior Leadership Team to review this Policy on an annual basis.

### IV. Violations

Any violation of this policy may result in disciplinary action, up to and including termination of employment or termination of vendor/agent agreement. This document shall not be construed to represent a contract of employment between the Company and any user or third party.

### V. Questions and Concerns

Questions and concerns may be directed to Ella Kimbrel, Senior Vice President, Human Resources, at [ekimbrel@harrells.com](mailto:ekimbrel@harrells.com).

  
\_\_\_\_\_  
Jack R. Harrell, Jr.  
CEO

ATTACHMENT G

# HARRELL'S PRODUCT CATALOG

Item #	Controlled-Release Fertilizer	U_of_M	OMNIA Price	Vendor
200083	41-0-0 Polyon Mini, 50 Lb (R040)	50 lb	\$62.00	Harrell's
200091	43-0-0 Polyon REG 50 Lb	50 lb	\$46.00	Harrell's
200092	42-0-0 Polyon REG 50 Lb	50 lb	\$47.25	Harrell's
200327	0-0-50 100%PCSOP Micro 50 Lb (R154)	50 lb	\$64.00	Harrell's
883008	43-0-0 100% Polyon Mini 50 Lb	50 lb	\$57.50	Harrell's
884179	44-0-0 100%PCU44 REG 50 Lb	50 lb	\$36.00	Harrell's
200492	20-0-20 70% Polyon-44 AS MOP SOP	50 lb	\$28.65	Harrell's
200493	15-0-15 75% Polyon-44 AS SOP .21% Barricade	50 lb	\$30.45	Harrell's
200491	15-0-15 75% Polyon-44 AS SOP 1% Ronstar	50 lb	\$53.25	Harrell's
200070	0-0-22 K-Mag Sul Po Mag REG 50 Lb	50 lb	\$20.95	Harrell's
200060	21-0-0 Ammonium Sulfate REG 50 Lb	50 lb	\$19.08	Harrell's
	Plant Health/Fungicide	U_of_M	OMNIA Price	Vendor
CIVITAPM1-2.5	Civitas Turf Defense Pre Mix	GAL	\$115.00	Intelligro
CIVITARM2-5	Civitas Turf Defense Ready 2 Mix	GAL	\$230.55	Intelligro
	Adjuvants	U_of_M	OMNIA Price	Vendor
HSMASA	Harrell's Activator+SA 1 Gal	Gallon	\$186.62	HOCKING
HSMBUF	Harrell's pH Buffer 1 Gal	Gallon	\$52.00	HOCKING
HSMCOC	Harrell's Crop Oil Concentrate 2.5 Gal	2.5GAL	\$134.96	HOCKING
HSMDEF2	Harrell's Defoamer 2.0 1 qt.	Quart	\$24.91	HOCKING
HSMHER	Harrell's Herbicide Activator 2.5 Gal	2.5GAL	\$62.90	HOCKING
HSMMET	Harrell's Methylated Seed Oil (CL 3B) 2.5 Gal	2.5GAL	\$89.48	HOCKING
HSMNPP	Harrell's Nonionic Penetrant Plus 2.5 Gal	2.5GAL	\$106.02	HOCKING
HSMPEN	Harrell's Nonionic Penetrant 2.5 Gal	2.5GAL	\$72.46	HOCKING
HSMSPR	Harrell's Nonionic Spreader/Sticker 1 Gal	Gallon	\$66.45	HOCKING
NOSTUNT	Seactyl No Stunt 2.64 gallons	2.64 GAL	\$462.00	TIMAC
SUNOIL	Sun Spray Ultra Oil 2.5 gal (CL 3B)	2.5GAL	\$91.13	HOCKING
	Amendments	U_of_M	OMNIA Price	Vendor
1HARDIV-GR	Harrell's Divot/Recovery Mix 50 Lb (GREEN DIVOT)	50 lb	\$16.00	GOLFAGRON
1HARDIV-GRBB	Harrell's Divot/Recovery Mix- BB (GREEN)	Ton	\$560.00	GOLFAGRON
200314	Greenlight S Gypsum Fairway 50 Lb	50 lb	\$22.86	OMYA
200315	Greenlight S Prime Gypsum Micro 50 Lb	50 lb	\$24.29	OMYA
200316	Greenlight Ca Lime Prime Micro 50 Lb	50 lb	\$25.94	OMYA



200317	Greenlight Ca Lime Fairway 50 Lb	50 lb	\$24.11	OMYA
300104	Harrell's K CalMAX 0-0-24 6% Mg Micro 50 Lb (R197)	50LB	\$55.44	FERTI
880060	EarthMax G REG 40 Lb (Hort)	40LB	\$23.51	ORGANIC PR
8800620-2.5	Harrell's EarthMAX Organic 2.5 Gal	2.5GAL	\$138.85	HOCKING
SOIENH	Soil Enhancer 2.5 Gal	2.5GAL	\$97.96	HOCKING
	<b>Foliar Nutritional</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Vendor</b>
200225	Harrell's Max Manganese 5%, 2.5 Gal	2.5GAL	\$53.22	HOCKING
200231	Harrell's Max Magnesium 4%, 2.5 Gal	2.5GAL	\$53.22	HOCKING
200232	Harrell's Stress Relefe, 0-0-25 2.5 Gal	2.5GAL	\$114.24	HOCKING
200232A	Harrell's Stress Relefe, 0-0-25 30 Gal	30 Gal	\$1,355.76	HOCKING
200233	Harrell's Max Minors, 2.5 Gal	2.5GAL	\$51.82	HOCKING
200233A	Harrell's Max Minors 30 Gal	30 Gal	\$619.38	HOCKING
200236	Harrell's Max Potassium + CA 4-0-8 2.5 Gal	2.5GAL	\$56.77	HOCKING
200236C	Harrell's Max Potass + CA 4-0-8, 250 Gal	250GAL	\$4,779.18	HOCKING
200238	Harrell's Max Calcium 8.25%, 2.5 Gal	2.5GAL	\$55.89	HOCKING
200245	Harrell's Max Salt Rx 2.5 gal (Not for CA)	2.5GAL	\$176.79	HOCKING
200247	Harrell's Max Cal Plus 2.5 Gal	2.5GAL	\$274.23	HOCKING
200247-30	Harrell's Max Cal Plus 30 Gal	30 Gal	\$3,093.10	HOCKING
200249	Harrell's Max Long Iron 2.5 Gal 15-0-0 6%Fe	2.5GAL	\$65.36	HOCKING
200249A	Harrell's Max Long Iron 30 Gal 15-0-0 6%Fe	30 Gal	\$769.97	HOCKING
200249B	Harrell's Max Long Iron 15-0-0 6%Fe 250 Gal	250GAL	\$6,283.20	HOCKING
200251	Harrell's Max Soil Surge 17-0-0 (H) (C) 2.5 Gal	2.5GAL	\$167.02	HOCKING
200253	Harrell's Max Aluminum Chelate 2.5 Gal	2.5GAL	\$51.41	HOCKING
200258	Iron Plus 18% Fe 3% Mn 50 Lb	50 lb	\$36.13	HOCKING
200267-2.5	Harrell's Ornamental MAX 8-2-4, 2.5 Gal	2.5GAL	\$58.69	HOCKING
200292	Harrell's Max "NSM" 2.5 Gal	2.5GAL	\$71.74	HOCKING
200292C	Harrell's Max "NSM", 250 Gal	250GAL	\$6,826.50	HOCKING
200294	Harrell's Max NS Iron 2.5 Gal	2.5GAL	\$52.45	HOCKING
200294A	Harrell's Max NS Iron 30 Gal	30 Gal	\$640.08	HOCKING
200295	Harrell's Max Nitrate Plus 2.5 Gal	2.5GAL	\$106.24	HOCKING
200295A	Harrell's Max Nitrate Plus 30 Gal	30 Gal	\$1,217.17	HOCKING
820440	Harrell's Bio Max 4-0-0 2.5 Gal	2.5GAL	\$201.04	HOCKING
820442	Harrell's Bio Max 12-0-6 w/UMAXX 2.5 Gal	2.5GAL	\$195.09	HOCKING

820443	Harrell's Iron, Mn, & Mg 30 Gal	30 Gal	\$663.10	HOCKING
820443A	Harrell's Iron, Mn, & Mg 250 Gal	250GAL	\$5,385.60	HOCKING
820443B	Harrell's Iron, Mn, & Mg 2.5 Gal (Q-A)	2.5GAL	\$42.77	HOCKING
820447-2.5	Bio-MAX Seaweed A+E 2.5 Gal	2.5GAL	\$232.46	HOCKING
820488-2.5	Harrell's Bio Max 7-0-7 2.5 Gal (No WI)	2.5GAL	\$269.07	HOCKING
820571	Harrell's Phosphorus Plus 2.5 Gal	2.5GAL	\$90.51	HOCKING
820813	Harrell's Max Potassium Silicate 2.5gal.	2.5GAL	\$102.95	HOCKING
822157	Harrell's N30+ w/Umaxx and SE 30gal.	30 Gal	\$1,121.41	HOCKING
822160	Harrell's N30+ w/Umaxx & SE 2.5gal	2.5GAL	\$94.57	HOCKING
822586	Harrell's 18-3-6 w/UMAXX 2.5 Gal	2.5GAL	\$88.64	HOCKING
822587	Harrell's 18-3-6 w/UMAXX 30 Gal	30 Gal	\$1,047.49	HOCKING
822610	Harrell's 12-0-0 6%Fe, 3%Mn (CL 3B) 2.5 Gal w/Umaxx	2.5GAL	\$65.78	HOCKING
822611	Harrell's 12-0-0 6%Fe, 3%Mn (CL 3B) 30 Gal w/Umaxx	30 Gal	\$774.48	HOCKING
880098-2.5	Amino Pro V 2.5 Gal Q-A	2.5GAL	\$350.91	HOCKING
880135	Harrell's Bio-MAX Mycorrhizae Pro 1 Qt. (CL3B)	Quart	\$228.75	HOCKING
880150-2.5	Harrell's Max 12-0-12 w/Umaxx 2.5 Gal	2.5GAL	\$90.74	HOCKING
880150-30	Harrell's Max 12-0-12 w/Umaxx 30 Gal	30 Gal	\$1,054.21	HOCKING
880151-2.5	Harrell's Max Tall Turf 30-0-0 2.5 Gal	2.5GAL	\$62.06	HOCKING
880151-250	Harrell's Max Tall Turf 30-0-0 250 Gal	250GAL	\$5,974.00	HOCKING
880151-30	Harrell's Max Tall Turf 30-0-0 30 Gal	30 Gal	\$730.80	HOCKING
ROOMAX	Harrell's Bio Max Root Enhancer 2.5 Gal NO CA or PA	2.5GAL	\$90.23	HOCKING
	<b>Paint/Pigments/Dye</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Vendor</b>
HSMBLA	Harrell's Black Pond Dye WSP 6 x 5.25 oz Each	6x5.25oz	\$116.24	HOCKING
HSMBLU	Harrell's Blue Pond Dye 2.5 Gal	2.5GAL	\$194.54	HOCKING
HSMBSI	Harrell's Blue Spray Indicator 2.5 Gal	2.5GAL	\$130.34	HOCKING
HSMGSI	Harrell's Green Spray Indicator 2.5 Gal	2.5GAL	\$205.26	HOCKING
HSMGTP	Harrell's Green Turf Paint 2.5 Gal	2.5GAL	\$187.56	HOCKING
HSMPARSG	Harrell's Par SG 1 Gal	Gallon	\$259.14	HOCKING
	<b>Specialty</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Vendor</b>
HARCHA	Harrell's Activated Charcoal 2.5gal	2.5 Gal	\$75.97	HOCKING
HSMPIG	Harrell's Pigment Cleaner Plus (HA) (4x1 Gal) Case	Case	\$238.86	HOCKING
HSMTAN	Harrell's Tank Cleaner (HA) 1 Qt.	Quart	\$19.85	HOCKING
HSMTMF	Harrell's Turf Marking Foam 1 Qt.	Quart	\$22.77	HOCKING

200751	Plus 5 Field Marking Dust 50 LB (56 per pallet)	50LB	\$157.73	IMERYS
	<b>Wetting Agents</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Vendor</b>
FLEET100-2.5	Fleet 100 2.5 Gal	2.5GAL	\$258.50	HOCKING
FLEET100-30	Fleet 100 30 Gal	30 Gal	\$2,995.44	HOCKING
HARROO	Harrell's Root Max Pellets 16/8 oz	16x8 oz	\$300.66	HOCKING
HYDCPPEL	HydroMax CP Pellets 16/8 oz	16x8 oz	\$360.34	HOCKING
HYDRO902.5	Hydro-90 2.5 Gal	2.5GAL	\$232.18	HOCKING
HYDRO9030	Hydro-90 30 Gal	30 Gal	\$2,756.83	HOCKING
HYDRO90G	Hydro-90 Granular 50 Lb	50LB	\$205.33	HOCKING
HYDROC2.5	Hydro-Cure 2.5 Gal	2.5GAL	\$147.53	HOCKING
HYDROC30	Hydro-Cure 30 Gal	30 Gal	\$1,684.48	HOCKING
HYDROCG-N	Hydro-Cure Granular 50 Lb	50LB	\$234.37	HOCKING
HYDROCPPEL	Hydro-Cure Pellets 16/8 oz	16x8 oz	\$324.13	HOCKING
HYDROINJ2.5	Hydro-Inject 2.5 Gal	2.5GAL	\$68.72	HOCKING
HYDROSPEL	Hydro-Cure SuperMax Pellets 4 x 8 Lb Case	4x8 LbCS	\$998.85	HOCKING
SYMPHO	Symphony Moisture Management 2.5 Gal	2.5GAL	\$256.24	HOCKING
SYMPHO1	Symphony Moisture Management 30 Gal	30 Gal	\$3,046.83	HOCKING
SYMPHOG50	Harrell's Symphony Granular 50 Lb	50LB	\$220.27	HOCKING
	<b>Harrell's Fungicides</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Vendor</b>
HPMAZO	Harrell's ProtectMax Azoxy 2SC 1 GAL (HA)	Gallon	\$490.00	Harrell's
HPMCLT-6L	Harrell's ProtectMax Chlorothalonil 6 L 2.5 Gal	2.5GAL	\$152.78	Harrell's
HPMCLT-DF	Harrell's ProtectMax Chlorothalonil DF 5 Lb (HA)	5LB	\$50.45	Harrell's
HPMCYA	Harrell's ProtectMax Cyazo 39.2 Fl Oz (HA) (CL3B)	39.2Fl Oz	\$430.02	Harrell's
HPMFLU	Harrell's ProtectMax Fluazinam 2.5 Gal (HA)	2.5GAL	\$1,425.00	Harrell's
HPMFLX	Harrell's ProtectMax Fluoxastrobin SC 0.5 Gal (HA)	.5GAL	\$1,381.33	Harrell's
HPMPRO	Harrell's ProtectMax Propiconazole 2.5 Gal	2.5GAL	\$234.74	Harrell's
HPMTEB	Harrell's ProtectMax Tebuconazole 2.5 Gal (HA)	2.5GAL	\$457.80	Harrell's
HPMTML	Harrell's ProtectMax T-Methyl 2.5 Gal (H)	2.5GAL	\$286.70	Harrell's
	<b>ENVU Products</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Type</b>
ALTUS	Altus 64 Oz (0.5 Gal)	Gallon	\$839.40	Insecticide
ALTUS>	Altus 64 Oz (0.5 Gal) >16 bottles	Gallon	\$797.40	Insecticide
BANOLF2	Banol	Gallon	\$491.50	Fungicide
BARRIC-32	Barricor SP 32 Fl Oz	Fl Oz	\$2.09	Insecticide

BAYLET3	Bayleton Flo	Gallon	\$755.60	Fungicide
BROAD-12	Broadform 12 Fl Oz	12 Fl Oz	\$242.00	Fungicide
BROAD-12>	Broadform 12 Fl Oz >16 bottles	12 Fl Oz	\$230.00	Fungicide
CELSIU	Celsius WG	10 OZ	\$125.80	Fungicide
CELSIUXT	Celsius XTRA	10 OZ	\$166.40	Herbicide
CHIPSIG11	Chipco Signature 11LB	11 LB	\$35.68	Fungicide
CHIPSIG11>	Chipco Signature 11LB 9+ bottles	11 LB	\$33.54	Fungicide
CHIPSIG44	Chipco Signature 44LB Case -No splits	44 LB Case	\$1,570.00	Fungicide
CHIPSIG44>3	Chipco Signature 44LB Case -No splits 3+ cases	44 LB Case	\$1,475.80	Fungicide
DENSIC-51	Densicor Fungicide 51oz	51 Fl Oz	\$725.00	Fungicide
EXTERI-N	Exteris Stressgard 2.5 Gal (3B) Agency	Gallon	\$143.30	Fungicide
FIATA	Fiata	Gallon	\$75.88	Fungicide
INDEMN17.1	Indemnify 17.1 Oz (Agency)	17.1 Oz	\$1,925.00	Nematicide
INDEMN17.1>6	Indemnify 17.1 Oz (Agency) 6+ bottles	17.1 Oz	\$1,732.50	Nematicide
INTERF	Interface StressGard	Gallon	\$224.40	Fungicide
INTERF>6	Interface StressGard 6+ jugs	Gallon	\$197.40	Fungicide
KONTOS250	Kontos Insecticide/Miticide 250 ML	250 ML	\$216.90	Insecticide
KONTOS250>	Kontos Insecticide/Miticide 250 ML >24 bottles	250 ML	\$195.20	Insecticide
MARENG50	Marengo G 50 Lb	50 Lb	\$121.50	Herbicide
MARENG50-21	Marengo G 50 Lb 21-79 bags	50 Lb	\$115.50	Herbicide
MARENG50-80	Marengo G 50 Lb 80+ bags	50 Lb	\$109.50	Herbicide
MARENG-64	Marengo 64 Oz (0.5 Gal)	Gallon	\$2,223.00	Herbicide
MARENG-64-4	Marengo 64 Oz (0.5 Gal) 4-12 bottles	Gallon	\$2,112.00	Herbicide
MARENG-64>16	Marengo 64 Oz (0.5 Gal) 16+ bottles	Gallon	\$2,001.00	Herbicide
MERIT6	Merit 75 WSP	x 1.6 oz Mega D	\$1,900.10	Insecticide
MIRAGE	Mirage StressGard	Gallon	\$194.88	Fungicide
RESILI	Resilia	Gallon	\$327.50	Fungicide
REVOLV	Revolver	87 OZ	\$743.10	Herbicide
RONSTA5	Ronstar Flo 2.5 Gal 1-11 bottles	Gallon	\$210.00	Herbicide
RONSTA5-12	Ronstar Flo 2.5 Gal 12-39 bottles	Gallon	\$172.40	Herbicide
RONSTA5>40	Ronstar Flo 2.5 Gal >40 bottles	Gallon	\$149.50	Herbicide
SAVATE8	Savate 8 Oz	8 Oz	\$380.70	Insecticide
SAVATE8>	Savate 8 Oz >24 bottles	8 Oz	\$361.65	Insecticide

SIGXTR	Signature Xtra Stressgard	Pound	\$37.45	Fungicide
SIGXTR>24	Signature Xtra Stressgard 24+ bottles	Pound	\$34.36	Fungicide
SPECTI6	Specticle Flo 1-13 Gals	Gallon	\$1,898.25	Herbicide
SPECTI6-14	Specticle Flo 14-25 Gals	Gallon	\$1,743.50	Herbicide
SPECTI6>26	Specticle Flo 26+ Gals	Gallon	\$1,566.20	Herbicide
SPECTI7	Specticle Flo 18oz	18 OZ	\$309.30	Herbicide
SPECTIG1	Specticle G VRG	Pound	\$2.51	Herbicide
TARTAN	Tartan Stressgard 6+ Jugs	Gallon	\$375.68	Fungicide
TARTAN<	Tartan Stressgard 1-5 Jugs	Gallon	\$413.20	Fungicide
TETRIN-1	Tetrino Insecticide	Gallon	\$498.00	Insecticide
TRIBUTE	Tribute Total WDG	6 OZ	\$405.30	Herbicide
<b>Item #</b>	<b>FMC Products</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Type</b>
DISMISSNXT-10	Dismiss NXT 10 Oz (Agency) (HA) (CL 3A)NO NY	10 Fl Oz	\$104.00	Herbicide
DISMISSNXT-60	Dismiss NXT 60 Fl Oz (Agency) (HA) (CL 3A) ) NO NY	60 Fl Oz	\$590.00	Herbicide
ECHELO	Echelon 4 SC (CL 2) 1 Gal (Agency)	Gallon	\$435.00	Herbicide
FAME1	Fame SC 16oz. (1Pint) (HA) (Agency)	Pint	\$445.00	Fungicide
FAME2	Fame SC 0.5 Gal. (Agency) (HA)	Gallon	\$3,198.00	Fungicide
FAME3	Fame SC 2.5 Gal. (Agency) (HA)	Gallon	\$2,691.60	Fungicide
FAMEC	Fame +C 2.5gallon (Agency)	Gallon	\$225.60	Fungicide
KALIDA	Kalida Fungicide 0.5gallon	Gallon	\$1,650.00	Fungicide
RAYORA	Rayora Fungicide 2.5 gal (Agency)	Gallon	\$245.20	Fungicide
SERATA	Serata Fungicide 35 Oz WDG (Agency)	35 Oz	\$475.00	Fungicide
SCION1	Scion Insecticide w/ UVX 1 Quart (CL3B) (HA) (Agency)	Quart	\$152.00	Insecticide
SOLITA1	Solitaire 75 WG 4 Lb (Agency)	Pound	\$144.75	Herbicide
SOLITA-2.5	Solitaire WSL 2.5 gallon	Gallon	\$98.00	Herbicide
TRIPTO	Triple Crown T & O Gal (T) (Agency)	Gallon	\$338.00	Insecticide
TRIPGO	Triple Crown GOLF Gal (T) (HA) (R) (Agency)	Gallon	\$338.00	Insecticide
XONERA-12	Xonerate 2SC (Agency) 12 Fl oz (HA)	Ounce	\$44.42	Herbicide
<b>Item #</b>	<b>Syngenta Products</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Type</b>
ACELE3	Acelepryn .5 Gal (2 qts) (HA) (Agency) <10gallons	Gal	\$2,275.00	Insecticide
ACELE3>	Acelepryn 0.5 Gal (2 qts) >10 Gals (HA) (Agency)	Gal	\$2,050.00	Insecticide
ACEXTR-2.5	Acelepryn XTRA 2.5 Gal < 25 GlS	Gal	\$800.00	Insecticide
ACEXTR-2.5>	Acelepryn XTRA 2.5 Gal > 25 GlS	Gal	\$720.00	Insecticide

ACEXTR-30	Acelepryn XTRA 30 Oz < 108 Btl	Ounce	\$6.25	Insecticide
ACEXTR-30>	Acelepryn XTRA 30 Oz < 108 Btl	Ounce	\$5.63	Insecticide
APPEAR2	Appear 2 Fungicide 2 Gal (Agency)	Gallon	\$189.00	Fungicide
ASCRNTY	Ascernity Fungicide 1 Gal (CL3B) (HA) (Agency)	Gallon	\$497.00	Fungicide
ASCRNTY-10	Ascernity Fungicide 10 Gal Link Pak (CL3B) (HA) (Agency)	Gallon	\$480.00	Fungicide
AVID1	Avid .15 EC (CL 3A) Gal (H) =>12 Gal (Agency)	Gallon	\$431.00	Insecticide
AVID1<	Avid .15 EC (CL 3A) Gal (H) <12 Gal (Agency)	Gallon	\$594.50	Insecticide
AVIMAI	Avid + Mainspring GNL MP (H) (CL 3A) (CL 1C) (Agency)	Case	\$1,600.00	Insecticide
BANMAX2	Banner MAXX II (CL 3B) Gal (Agency)	Gallon	\$255.00	Fungicide
BANMAX2LP	Banner MAXX II (CL 3B) 10 Gal (Agency)	Gallon	\$245.00	Fungicide
BARR4L	Barricade 4 FL (CL 3B) (HA) - 10 Gal (Agency) >=20 gls	Gallon	\$144.00	Herbicide
BARR4L<	Barricade 4 FL (CL 3B) (HA) - 10 Gal (Agency) <=20 gls	Gallon	\$159.00	Herbicide
BARR4L1	Barricade 4FL (CL 3B) 1 Gal >=20 Gallons (Agency)	Gallon	\$158.00	Herbicide
BARR4L1<	Barricade 4FL (CL 3B) 1 Gal <20 Gallons (Agency)	Gallon	\$166.50	Herbicide
BARR4LF	Barricade 4 FL 30 Gal (Agency) >=60 GlS	Gallon	\$127.50	Herbicide
BARR4LF<	Barricade 4 FL 30 Gal (CL 3B) (Agency) <60 GlS	Gallon	\$138.00	Herbicide
BARR5	Barricade 65WG 5LB >=320lb (Agency)	Pound	\$21.25	Herbicide
BARR5<	Barricade 65WG 5LB <320LB (Agency)	Pound	\$24.50	Herbicide
BONZI2	Bonzi 2.5 Gal >=15 (Agency) (CL 3B)	Gallon	\$154.00	Regulator
BONZI2<	Bonzi 2.5Gal <15gal (Agency) (CL 3B)	Gallon	\$193.50	Regulator
BRISKW	Briskway 1 Gal (CL 3B) (HA) (Agency)	Gallon	\$1,457.00	Fungicide
BRIVEL-MP	Briskway + Velista Multipak	Case	\$2,856.00	Fungicide
COMPEN	Compendium 1 Gal < 60 GlS	Gallon	\$283.00	Fungicide
COMPEN>	Compendium 1 Gal > 60 GlS	Gallon	\$240.00	Fungicide
CONCER	Concert II 2.5 Gal =>75Gal. (CL 3B) (Agency)	Gallon	\$96.00	Fungicide
CONCER<	Concert II 2.5 Gal <75gal (CL 3B) (Agency)	Gallon	\$107.00	Fungicide
CONTEND	Contend A+B Snow MP (HA) (Agency)	Case	\$888.00	Fungicide
CONTEND-AB	Contend A+B Snow MP (HA) (Agency)	Case	\$888.00	Fungicide
DACAAP	Daconil Action+Appear 2 MP (CL 3B) (Agency)	Case	\$454.00	Fungicide
DACABM	Daconil Action+BannerMAXX II (CL 3B) MP( Agency)	Case	\$468.00	Fungicide
DACACT	Daconil Action (CL 3B) 2.5 Gal (Agency)	Gallon	\$106.00	Fungicide
DACAHAM	Daconil Act+Heritage Act MP (CL 3B) (Agency)	Case	\$878.00	Fungicide
DACOZN1	Daconil ZN, 2.5 gal (Agency) (HA)	Gallon	\$87.00	Fungicide



DACULT1	Daconil Ultrex, 5 Lb Bag (Agency) (HA)	Pound	\$17.00	Fungicide
DACWEA1	Daconil Weather Stik 2.5 Gal (Agency)	Gallon	\$84.00	Fungicide
DEMARM	Demand + Archer MP (Agency) (HA) (CL 3A)	Case	\$401.75	Insecticide
DIVANE	Divanem 0.5 Gal (R) (T) (HA) <4gal (Agency)	Gallon	\$3,786.00	Insecticide
DIVANE>	Divanem 0.5 Gal (R) (T) (HA) =>4gal (Agency)	Gallon	\$3,234.00	Insecticide
DIVHER-MP	Divanem + Heritage Action MP( R) (T) (HA) (Agency)	Case	\$3,404.00	Combination
FERENC	Ference 96 OZ (T) (Agency) Long Island appvd Til 2024	96 Oz	\$1,920.00	Insecticide
FERENC>	Ference 96 OZ (T) (Agency) 4+ bottles Long Island appvd Til 2024	96 Oz	\$1,728.00	Insecticide
FLAGSH1	Flagship WG 2 Lb Jug (Agency)	Pound	\$219.50	Insecticide
HEADWA1	Headway 10 Gal (CL 3A) (Agency)	Gallon	\$508.00	Fungicide
HEAWAY	Headway Fung. (CL 3A) Gal (Agency)	Gallon	\$536.00	Fungicide
HERACT1	Heritage Action 1 Lb (Agency) (HA)	Pound	\$378.00	Fungicide
HERAVMP	Heritage Action + VelistaMP (Agency)(HA)	Case	\$1,793.00	Fungicide
HERITA1	Heritage Fungicide 1 Lb (Agency) (HA)	Pound	\$367.00	Fungicide
HERITA2	Heritage 6 Lb (Agency)	Pound	\$367.00	Fungicide
HERITA3	Heritage TL (CL 3A) 10 Gal (Agency)	Gallon	\$591.00	Fungicide
HERITA4	Heritage TL (CL 3A) Gal (Agency)	Gallon	\$602.00	Fungicide
INSTRAT	Instrata (C) 2.5 Gal >= 25 Gls (Agency)	Gallon	\$160.00	Fungicide
INSTRAT<	Instrata (C) < 25 Gls 2.5 Gal (Agency)	Gallon	\$188.00	Fungicide
MAINGNL	Mainspring GNL 1 Pint (CL 3B) >8 Pints (Agency)	Pint	\$291.50	Insecticide
MAINGNL<	Mainspring GNL 1 Pint (CL 1C) < 8 Pints (Agency)	Pint	\$352.50	Insecticide
MAINGNL1	Mainspring GNL 1 Gallon (CL 3B) (Agency)	Gallon	\$2,332.00	Insecticide
MANSCR-MP	Manuscript MP Case (CL 3B) (CL 3A) (HA) (Agency)	Case	\$970.00	Herbicide
MEDAL1	Medallion WDG =>128oz 8oz. (Agency) Orn. Only	Ounce	\$19.80	Fungicide
MEDAL1<	Medallion WDG <128oz 8oz. (Agency) Orn. Only	Ounce	\$22.00	Fungicide
MEDAL2	Medallion SC 1 Gal (Agency)	Gallon	\$685.00	Fungicide
MERIDI3	Meridian 25 WG Pak 102oz=Each (HA) (Agency) NO NY	OZ	\$5.70	Insecticide
MICORA	Micora 1 qt. (Agency) (CL 3B)	Quart	\$317.00	Fungicide
MONUME<	Monument 75 WG (5x5 Gram is Each) <250g (Agency) (HA)	5x5GM	\$300.00	Herbicide
MONUME1	Monument 75 WG (5x5 Gram is Each) =>250g (Agency) (HA)	5x5GM	\$275.00	Herbicide
MURAL	Mural 1 Lb (Agency)	Pound	\$220.50	Fungicide
MURMAI	Mural + Mainspring GNL MP(Agency)	Case	\$1,165.00	Combination
PALLAD	Palladium 2lb (Agency)	Pound	\$174.50	Fungicide

POSASC	Posterity XT + Ascernity Multipak	Case	\$1,011.00	Fungicide
POSFOR-1	Posterity Forte 1 Gal (Agency) (HA) (CL 3B)	Gallon	\$835.00	Fungicide
POSMUR	Postiva + Mural Multipak	Case	\$718.00	Fungicide
POSTER-105	Posterity 105 Fl Oz (Agency) (HA) (CL 3B)	105 Floz	\$1,704.00	Fungicide
POSTER-42	Posterity 42 Fl Oz (Agency) (CL 3B) (HA)	42 Floz	\$987.00	Fungicide
POSTIV-28	Postiva Fungicide 28 Fl Oz	Ounce	\$3.60	Fungicide
POSTXT-2.5	Posterity XT 2.5 Gal (Agency) (T)	Gallon	\$256.00	Fungicide
PRIMAX	Primo MAXX (CL 3A) (HA) Gal (Agency)	Gallon	\$317.00	Regulator
PRIMO3	Primo LP, (CL 3A) 10 Gal (Agency)	Gallon	\$299.00	Regulator
PRITRIM	Primo Maxx+Trimmit MP(CL 3A)(CL 3B) (Agency)	Case	\$741.00	Regulator
PROVAU-72	Provaunt WDG 72 Oz (Agency) No CA HA	Ounce	\$6.00	Insecticide
RECOGN	Recognition Herbicide 1.95 Oz	Ounce	\$89.00	Herbicide
RENOWN	Renown Fung 2.5gal (Agency)	Gallon	\$296.00	Fungicide
REWAR2	Reward 2.5gallon (H) (Agency) (C)	Gallon	\$96.00	Herbicide
SECACT-0.5	Secure Action 0.5 Gal Agency(CL 3B) (HA) No CA	Gallon	\$821.00	Fungicide
SECACT-2.5	Secure Action 2.5 Gal Agency (CL 3B) (HA) No CA	Gallon	\$697.00	Fungicide
SECURE	Secure 2.5 Gal (Agency)	Gallon	\$661.00	Fungicide
SUBDUE1	Subdue Maxx LP, 10 Gal (Agency)	Gallon	\$591.00	Fungicide
SUBMAX	Subdue Maxx 1gal (Agency) (CL 3B)	Gallon	\$611.00	Fungicide
TANDEM	Tandem Insecticide 2 Qt (Agency)	2QT	\$142.00	Insecticide
TANDEM>	Tandem Insecticide 2 Qt (=>128qt) (Agency)	2QT	\$123.00	Insecticide
TENACI1	Tenacity (CL 3B) 1Gal. (>8 gal.) (Agency)	Gallon	\$831.50	Herbicide
TENACI1<	Tenacity (CL 3B) 1Gal. (<8gal.) (Agency)	Gallon	\$915.00	Herbicide
TRIMMI1	Trimmit 2 SC (CL 3B) 1 Gal (Agency)	Gallon	\$555.00	Herbicide
TRIMMI2	Trimmit 2 SC (CL 3B) (HA) 2.5 Gal (Agency)	Gallon	\$508.00	Herbicide
TUQUE-2.5	Tuque exoGEM 2.5 Gal	Gallon	\$290.00	Fungicide
VELIST	Velista WDG 22 Oz (HA) NO NY (Agency)	Ounce-L	\$13.00	Fungicide
SYNA2Z	Syngenta A2Z Solution Pallet	1 pallet	\$8,181.00	Combination
SYNABW	Syngenta ABW Solution	1 pallet	\$8,355.00	Insecticide
SYNASS	Syngenta All Season Solution Pallet	1 pallet	\$12,283.00	Combination
SYNCSP	Syngenta Classic Solution Pallet limited supply	1 pallet	\$5,400.00	Combination
SYNCSP???	Syngenta Classic Solution Pallet w/ Heritage TL	1 pallet	\$5,657.00	Combination
SYNCON	Syngenta Contend Winter Solution Pallet	1 pallet	\$5,834.00	Fungicide



SYNFRS	Syngenta Fairy Ring Solution Pallet	1 pallet	\$9,008.00	Fungicide
SYNFSS	Syngenta Fairway Starter Solution Pallet	1 pallet	\$15,588.00	Combination
SYNFOR	Syngenta Forte Solution Pallet	1 pallet	\$20,068.00	Combination
SYNGFS	Syngenta Greens Foundation Solution Pallet	1 pallet	\$6,992.00	Combination
SYNGPS	Syngenta Greens Protection Solution Pallet	1 pallet	\$9,793.00	Combination
SYNSMS	Syngenta Snow Mold Solution-Pallet	1 pallet	\$3,734.00	Fungicide
SYNWSH	Syngenta Warm Season Herb. Sol. Pallet	1 pallet	\$3,906.00	Herbicide
SYNWPS	Syngenta Winter Protection Sol. Pallet	1 pallet	\$5,686.00	Fungicide
SYNXTS	Syngenta XT Solution Pallet	1 pallet	\$19,478.00	Combination
Item #	PBI Products	U_of_M	OMNIA Price	Type
ARKON-2.5	Arkon Herbicide 2.5 Gal	Gallon	\$190.00	Herbicide
ATRIMM	Atrimmec 1 Qt (CL 2) (Q-A)	1 QT	\$101.00	Herbicide
ATRIMM2	Atrimmec 1 Gal (CL 2) (Q-A)	Gallon	\$387.00	Herbicide
AVENUE	Avenue South (CL 2) 2.5 Gal (Q-A)	Gallon	\$87.00	Herbicide
AVENUE-30	Avenue South (CL 2) 30 Gal (Q-A)	Gallon	\$85.00	Herbicide
KABUTO	Kabuto SC 1 Gal (Q-A) (HA)	Gallon	\$634.00	Fungicide
KATANA5	Katana Herbicide 5 Oz (Q-A)	Ounce	\$37.60	Herbicide
PEDIGREE-2.5	Pedigree SC 2.5 Gal (Q-A)	Gallon	\$341.00	Fungicide
Q4P2.5	Q4 Plus Turf Herb. 2.5gal.(CL 2) (Not for sale in NY) (Q-A)	Gallon	\$133.00	Herbicide
Q4PLUS	Q4 Plus Turf Herb. 2.5gal. (NY Spot treatment) (Q-A)	Gallon	\$133.00	Herbicide
Q4PLUS-30	Q4 Plus Turf Herb. 30 Ga (CL 2) (HA) (Q-A)	Gallon	\$131.00	Herbicide
SPEEDREW-1	Speedzone RED EW (CL 3B) 1 gal (Q-A)	Gallon	\$93.00	Herbicide
SPEEDREW-2.5	Speedzone RED EW (CL 3B) 2.5 gal (Q-A)	Gallon	\$91.00	Herbicide
SPEEDREW-30	Speedzone RED EW (CL 3B) 30 gal (Q-A)	Gallon	\$88.00	Herbicide
SPEEDZEW-1	Speedzone GRN Southern EW (CL 3B) 1 gal (Q-A)	Gallon	\$74.00	Herbicide
SPEEDZEW-2.5	Speedzone GRN Southern EW (CL 3B) 2.5 gal (Q-A)	Gallon	\$72.00	Herbicide
SPEEDZEW-30	Speedzone GRN Southern EW (CL 3B) 30 Gal (Q-A)	Gallon	\$69.00	Herbicide
SURGE	Surge 2.5 Gal Jug (CL 2) (Q-A)	Gallon	\$75.00	Herbicide
SURGE2	SURGE (AMINE) 30 GAL (Q-A)	Gallon	\$73.00	Herbicide
TEKKEN-2.5	Tekken (CL 3B) 2.5 gal (HA) (Q-A)	Gallon	\$165.00	Fungicide
TZONESE	T Zone SE (HA) 2.5 Gal (Q-A)	Gallon	\$80.00	Herbicide
TZONESE-30	T Zone SE (HA) 30 Gal (Q-A)	Gallon	\$78.00	Herbicide
UNION-2.5	Union Fungicide SC 2.5 Gal (Q-A) (HA)	Gallon	\$281.00	Fungicide

VEXIS-2	Vexis Herbicide Granular 2lb (Q-A)	Pound	\$7.50	Herbicide
VEXIS-15	Vexis Herbicide Granular 15lb (Q-A)	Pound	\$1.53	Herbicide
ZYLAM2	Zylam 10% (Q-A) Qt (HA)	Quart	\$128.00	Insecticide
ZYLAM3	Zylam 10% (Q-A) 1 Gal (HA)	Gallon	\$488.00	Insecticide
<b>Item #</b>	<b>BASF Products</b>	<b>U_of_M</b>	<b>OMNIA Price</b>	<b>Type</b>
ALUCIO	Alucion 35 WG Insecticide 2.375lb	Pound	\$102.86	Insecticide
AVELYO	Avelyo Fungicide 60 Fl Oz	60 Fl Oz	\$245.40	Fungicide
EMERAL4	Emerald 10 x 0.49lb	Pound	\$242.32	Fungicide
ENCART-2.5	Encartis Fungicide	Gallon	\$129.13	Fungicide
FREEHA	FreeHand (NO CA) 50lb	Pound	\$1.97	Herbicide
HONOR2	Honor Intrinsic Fung. 3 Lb	Pound	\$183.53	Fungicide
HONOR3	Honor Intrinsic Fung. 36 Lb	Pound	\$135.20	Fungicide
INSIGN6	Insignia SC Intrinsic 30.50z	Ounce	\$17.78	Fungicide
INSIGN5	Insignia SC Intrinsic 2.5gal	Gallon	\$1,445.02	Fungicide
LEXICO	Lexicon 21oz	Ounce	\$28.79	Fungicide
MAXTIM-2.5	Maxtima 2.5 Gal	Gallon	\$901.68	Fungicide
MAXTIM-26	Maxtima 26 Oz	Ounce	\$8.73	Fungicide
NAVICO-2.5	Navicon Intrinsic 2.5 Gal	Gallon	\$1,399.60	Fungicide
NAVICO-37	Navicon Intrinsic 37 Oz	Ounce	\$14.68	Fungicide
ORKEST	Orchestra 0.125 Gal (16 Oz)	Gallon	\$1,204.48	Fungicide
ORKEST-80	Orchestra 0.625 Gal (80 oz)	80 Oz	\$680.00	Fungicide
PAGEANA	Pageant Intrinsic 1lb	Pound	\$99.76	Fungicide
PAGEANB	Pageant Intrinsic 12lb	Pound	\$91.79	Fungicide
PENDU1	Pendulum Aqua Cap 15gal	Gallon	\$65.54	Herbicide
PYLEX-4	Pylex 4 Fl Oz	Ounce	\$86.00	Herbicide
PYLON2	Pylon Miticide .5gal	Gallon	\$3,374.00	Miticide
PYLON-32	Pylon Miticide 32 Fl Oz	Ounce	\$22.86	Miticide
SULTAN	Sultan Miticide 0.125 gal	Gallon	\$1,348.40	Miticide
TOWER4	Tower Herbicide 2.5gal	Gallon	\$394.50	Herbicide
VENTIGRA	Ventrigra Insecticide 20oz	Ounce	\$15.04	Insecticide
XZEMPL	Xzemplar 114oz	Ounce	\$15.14	Fungicide
XZEMPL1	Xzemplar 11.4oz	Ounce	\$17.72	Fungicide