

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

**Tulane University Nitrogen Reduction Challenge:
OFFICIAL RULES
6.30.16 r1**

Revision History

Note: All new/modified language within the Tulane University Nitrogen Reduction Challenge Rules is provided in blue for increased visibility within the existing text.

6.30.2016 - Revision from original version of Rules dated 4.1.2016

Rules updated to reflect extension of Registration Period.

SECTION 3 – CHALLENGE SCHEDULE:

Table PREVIOUSLY read:

April 1 – June 30, 2016	Official registration for the Tulane Nitrogen Reduction Challenge opens on-line. Teams will be required to complete the registration application and include a three-page technical abstract to better allow the determination of eligibility within the scope of the Challenge. If approved and deemed eligible, teams will be notified of their acceptance and given access to the Technical Submission template. Acceptance will occur on a rolling basis as registrations are completed.
June 30, 2016	Registration close at 11:59 PM CT; announcement of all official Registered Teams will follow. Required Forms Due: Registration Application Form with Technical Abstract

Table NOW reads:

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

<p>April 1 – August 15, 2016</p>	<p>Official registration for the Tulane Nitrogen Reduction Challenge opens on-line.</p> <p>Teams will be required to complete the registration application and include a three-page technical abstract to better allow the determination of eligibility within the scope of the Challenge.</p> <p>If approved and deemed eligible, teams will be notified of their acceptance and given access to the Technical Submission template. Acceptance will occur on a rolling basis as registrations are completed.</p>
<p>August 15, 2016</p>	<p>Registration close at 11:59 PM CT; announcement of all official Registered Teams will follow.</p> <p>Required Forms Due: Registration Application Form with Technical Abstract</p>

SECTION 5 – REGISTRATION:

PREVIOUSLY read:

Teams must complete Registration Application Form by 11:59 p.m. CT, June 30, 2016.

NOW reads:

Teams must complete the Registration Application Form by 11:59 p.m. CT, August 15, 2016.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

**Tulane University Nitrogen Reduction Challenge:
OFFICIAL RULES
6.30.16 r1**

Section 1: Overview.....	5
Section 2: Guiding Principles.....	6
Section 3: Challenge Schedule.....	7
Section 4: Eligibility.....	9
Section 5: Registration.....	10
Section 6: Challenge Criteria and Prize Payment.....	11
Section 7: Challenge Advisory Committee.....	11
Section 8: Challenge Structure.....	12
8.1 Phase I: Technical Submission for Determination of Finalist Teams.....	12
8.1.1. Review and Evaluation of Phase I.....	14
8.2 Phase II: Solution Demonstration and Evaluation for Determination of a Winner.....	15
8.2.1 Review and Evaluation of Phase II for the Determination of a Winner.....	17
Section 9: Public Relations/Media/Marketing – Cooperation and Support.....	19
9.1 Required Website Updates.....	19
9.2 Social Media Outreach.....	19
9.3 Mandatory Events.....	20
Section 10: Sponsorship, Logos and Branding.....	20
10.1 Team Sponsorship.....	20
10.2 Team Name and Team Logo.....	20
10.3 Prize Name and Prize Logo Use.....	20
10.4 Merchandising.....	20
10.5 Team Uniforms.....	21
Appendix.....	22
Appendix A: Branding and Logo Usage Guidelines.....	22
1.0 Misuse.....	22
2.0. Approval for Use of Logo.....	22
3.0 Official Logos & Wordmarks.....	22

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

4.0	Important Restrictions	24
5.0	Minimum Sizes	24
6.0	Colors.....	24
7.0	Promotional Materials.....	25
8.0	Prohibited Use.....	25
9.0	Contact	26

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Section 1: Overview

In partnership with Tulane University, Phyllis Taylor has sponsored a \$1 million prize to be awarded to the team or individual that achieves the goal of creating a significant and workable solution to hypoxia, as attributed to nutrient run-off from agricultural activities.

Tulane University (Tulane) has decided to put forward a series of challenges that all deal with hypoxia. Hypoxia is a global phenomenon, but with very local implications associated with the Gulf of Mexico. Tackling hypoxia is a very large scale problem. Tulane has recognized this and has started with an initial step in understanding how hypoxia can be remediated by creating a challenge in which contestants and challenge teams will document the use of in-field solutions for simultaneously maximizing the efficiency of nutrient delivery and crop yield, and thus minimizing nutrient delivery downstream. The simple tenet of the challenge is by maximizing efficiency of application and enhancing yield one reduces the amount of nutrients available to move downstream.

Nutrient reduction is not only a prevalent topic in the Mississippi River Basin; it's a pervasive topic throughout the country. The Mississippi River drains 43% of the United States including two provinces in Canada. It is the lifeblood of the US economy and drives coastal productivity in the Gulf of Mexico. The Mississippi River Basin is also the proverbial breadbasket of agriculture in the United States. Over 80% of corn and soybeans grown in the US are grown within the basin. With this intensive agriculture comes the potential for increased nutrients moving downstream, and impacting water quality. The sustainable intensification of agriculture must go hand-in-hand with conservation. Conservation in the 21st century has to make economic sense. Thus Tulane has focused on a strategy that has turned potentially competing paradigms into leveraged opportunities.

One of the visions of the hypoxia challenge is that hypoxia in the Gulf of Mexico is a coastal problem with an inland solution. The inland solution is designing systems that work well with agriculture to reduce the amount of nutrients delivered downstream. Tulane under the umbrella of the hypoxia challenge captured the nutrient reduction effort in a couple of simple tenants:

- There are clear connections between the Gulf of Mexico and what is happening on the ground on farms. To really improve water quality there is a need to understand these connections better.
- Tangible connections between high-level strategies of the federal Hypoxia Task Force, the Gulf of Mexico Alliance and other federal agencies and

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

how it is translated to effective conservation practices on the ground are understood.

- Any conservation practice that is implemented needs to make economic sense. Sustainable intensification is rooted in that conservation practices need to make economic sense to our farmers.

In recognizing the need for sustainable intensification, the desire for investing in a commercial, market-potential solution for improving nutrient delivery, with the potential consequences for hypoxia reduction, the first challenge that will be undertaken will be the Tulane Nitrogen Reduction Challenge.

The focus of the Tulane Nitrogen Reduction Challenge is the reduction of agricultural nitrogen delivery to aquatic systems by enhancing efficiency and precision of fertilizer applications using innovative in-field solutions.

Some examples of in-field solutions could include, but are not limited to:

- Cloud based models
- Decision support systems
- Database management systems
- In-field sensor technologies
- Experimental application strategies
- Fertilizer stabilizers
- Alternative fertilizer products
- Novel fertilizers

In-field solutions should not include:

- Biological systems including cover crops
- Irrigation best management practices (BMPs)
- Edge-of-field BMPs

Section 2: Guiding Principles

Tulane has designed the Tulane University Nitrogen Reduction Challenge so that it adheres to the following principles:

- Focus on the key users and benefit recipients of nutrient management practices; farmers and the water quality in downstream environments, such as the Mississippi River and Gulf of Mexico hypoxic zones
- Stimulate the development of new options for farmers to manage nutrient use in agricultural systems

TULANE UNIVERSITY
NITROGEN REDUCTION
 GRAND CHALLENGE

- Be simple to understand and easy to communicate
- Remain independent, non-partisan, and solution neutral, treating competitors with equality and fairness
- Attract a balanced set of donors, sponsors, and partners to help competitors succeed
- Provide opportunities for recognition so that it is worthwhile to compete whether or not a team places first
- Promote the competitors and winner(s) through widespread exposure, media coverage, and a significant cash award
- Educate the public on key issues related to hypoxia, while highlighting innovative solutions to these issues

Tulane and the Nitrogen Reduction Challenge Administrators and sponsors are entering into this competition in good faith and expect and require the same attitude from all Teams and participants, together providing the most favorable experience for all.

Section 3: Challenge Schedule

The competition will occur in two phases:

Phase I – Registration and Technical Submission for Determination of Finalists

Phase II – Solution Demonstration and Evaluation for Determination of a Winner

An overview of the competition timeline is provided below.

Challenge Phase I: Registration and Technical Submission for Determination of Finalists	
Teams	
April 1 – August 15, 2016	<p>Official registration for the Tulane Nitrogen Reduction Challenge opens on-line.</p> <p>Teams will be required to complete the registration application and include a three-page technical abstract to better allow the determination of eligibility within the scope of the Challenge.</p> <p>If approved and deemed eligible, teams will be notified of their acceptance and given access to the Technical Submission template. Acceptance will occur on a rolling basis as registrations are completed.</p>
August 15, 2016	<p>Registration close at 11:59 PM CT; announcement of all official Registered Teams will follow.</p>

TULANE UNIVERSITY
NITROGEN REDUCTION
 GRAND CHALLENGE

	Required Forms Due: Registration Application Form with Technical Abstract
September 30, 2016	Technical Submissions for Phase I judging are due by 11:59 PM CT; White paper submission outlining in-field solution and implementation plan; submissions will be judged based on viability and innovation; up to five (5) highest ranking entries will be named Finalists and will be invited to participate in Phase II; first 100 submissions will be accepted and reviewed. Required Forms Due: Team Agreement & Technical Submission
October – November, 2016	First 100 Technical Submissions will be reviewed by Challenge Advisory Committee and scored according to the criteria outlined in Section 8.1.1 of this Rules document.
Early December, 2016	Announce up to five (5) Finalist Teams moving forward to Phase II of competition.
Challenge Phase II: Solution Demonstration and Evaluation for Determination of a Winner	
January, 2017 – March 15, 2017	Up to five (5) Finalist Teams prepare for Phase II, in-field trial.
March 2017 – September, 2017	Demonstration of proposed in-field solutions at a Challenge designated test site in the state of Louisiana.
October 15, 2017	Finalist Teams must submit a summary report by 11:59 PM CT demonstrating: <ul style="list-style-type: none"> • Why the proposed solution would result in a net negative nutrient delivery to downstream systems • A plan for implementation / adoption, noting required support
October - November, 2017	Data from in-field testing is reviewed and “Utilization Efficiency” is calculated for each Finalist Team. Team reports are reviewed by Advisory Committee. All inputs are ranked and scored according to the criteria

TULANE UNIVERSITY
NITROGEN REDUCTION
 GRAND CHALLENGE

	listed in Section 8.2.1 of this Rules document.
December, 2017	Winner of Tulane University Nitrogen Reduction Challenge announced and \$1M purse awarded.

Specific dates for announcements, testing, and other noted items will be confirmed and provided to the competing Teams closer to the designated event. Tulane and the Nitrogen Reduction Challenge Administrators reserve the right to modify the timing associated with the Challenge, and will provide proper notification to participants should a timing change occur.

Section 4: Eligibility

The Tulane Nitrogen Reduction Challenge is open to companies, educational institutions and individuals, willing and able to meet the performance criteria established in the Rules. To be eligible to compete and claim a prize, a team must be a registered Participating Team and must otherwise comply with all the terms of the Team Agreement.

Current employees of Tulane, and Potential Teams/Team Members with ties to Tulane and the Challenge Administrators may participate in the Nitrogen Reduction Challenge with full disclosure at the time of Team Registration. Additionally, Teams/Team Members with ties to members of the Challenge Advisory Committee must disclose the relationship at the time of Team Registration.

Teams must meet these qualifying requirements:

- A. The Team must have a single entity representing the entire team. This entity shall be designated the Team Leader. The Team Leader is responsible for providing and meeting all submission and evaluation requirements.
- B. Any entity or individual that has substantial active involvement on the team’s Prize performance must be included as a team member. The Nitrogen Reduction Challenge is open to companies, educational institutions and individuals, willing and able to meet the performance criteria established in this rules document. To be eligible to compete and claim a prize, a team must comply with all the terms of the Team Agreement.

One person must be designated as the Team Leader and will be responsible for receiving communications from and communicating with Tulane.

An individual may participate on only one team; one cannot be part of multiple teams.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Tulane reserves the right to limit, or restrict upon notice, participation in the competition to any person or entity at any time for any reason.

A team may withdraw from the competition by written notice to Tulane via email to tuchallenge@tulane.edu at any time.

Section 5: Registration

To participate in the Nitrogen Reduction Challenge, Teams must accurately and truthfully complete the Registration Application Form via the official online template on the competition website (<https://challenge.tulane.edu>).

Teams must complete the Registration Application Form by 11:59 p.m. CT, August 15, 2016.

To register, Teams must fill out the Registration Application Form, which requires the following:

- Team name
- Team leader's name and basic information
- Team photo and logo (if available)
- List of all Team Members, providing each Team Member's full name, e-mail address, phone, mailing address, affiliation, if any, and country
- A quote about the Nitrogen Reduction Challenge (150-word statement expressing your views on the importance of the competition. This statement will be used on the Tulane and competition websites, as well as in marketing and promotional materials)
- A technical abstract overview (maximum 2000 words or approximately three (3) pages) outlining the proposed in-field solution and its utility for decreasing nutrient delivery downstream from agricultural fields.

Registration Application Forms and technical abstracts will be reviewed by Tulane, Challenge Advisory Committee, and the Challenge Administrators upon receipt. Tulane and the Challenge Administrators will use best efforts to notify the Teams of acceptance or rejection within ten (10) business days of receipt of the Registration Application Form.

Teams are urged to register for the Challenge early in the process to allow the full amount of allowable time to complete and submit the Technical Submission. The **Technical Submission is due on September 30, 2016 by 11:59 PM CT**, and only the first 100 submissions will be accepted and reviewed.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Tulane and Challenge Administrators may refuse a registration application for any reason.

Tulane and Challenge Administrators may pose additional questions or requests for clarification to supplement the registration materials as part of its evaluation. All rejection or acceptance decisions by Tulane will be final and teams may not appeal decisions.

Section 6: Challenge Criteria and Prize Payment

A single prize purse of **\$1,000,000 USD** will be awarded to the team that can:

- 1) Demonstrate the maximization of nutrient delivery efficiency and enhance yield in a trial agricultural production setting, and
- 2) Showcase how an in-field solution integrates into a real-world agricultural system of management to reduce the amount of nutrients available to move downstream.

The winning team will be paid this prize per the terms of the Team Agreement. The winning team is responsible for all taxes related to prize. Teams will not receive payment or reimbursement of costs for preparation or participation in the competition. Teams are solely responsible for their own costs throughout the duration the Nitrogen Reduction Challenge.

If it is determined by Tulane that the Finalist Teams are not able to achieve/demonstrate the stated goals of the Nutrient Reduction Challenge, a prize will not be awarded.

In the unlikely event the Nitrogen Reduction Challenge is cancelled, Tulane will not be responsible for payment of a prize purse or for reimbursement to Teams for costs arising from participation.

Section 7: Challenge Advisory Committee

The official judges of the Tulane University Nitrogen Reduction Challenge will be called the “Challenge Advisory Committee.” The Challenge Advisory Committee, in conjunction with Tulane and the Challenge Administrators will be responsible for evaluating compliance with these rules.

The Challenge Advisory Committee will be comprised of highly qualified and impartial judges. Tulane will publically name all members of the Challenge Advisory Committee. Members of the Challenge Advisory Committee will have relevant backgrounds in order to ensure that all of the requirements of the competition will be addressed.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

All recommendations and opinions made by the Challenge Advisory Committee will be rendered by a majority of the members. The Challenge Advisory Committee will provide these results to Tulane and the Challenge Administrators who retain the sole and absolute discretion to declare a winner of the competition; their decisions are binding and not subject to review or contest.

All members of the Challenge Advisory Committee will be required to sign a confidentiality agreement, as well as statements acknowledging that they make no claim to the intellectual property developed by teams or relevant team sponsors or partners.

Section 8: Challenge Structure

The Tulane University Nitrogen Reduction Challenge is a two-phase incentivized competition that will allow teams to demonstrate the performance of in-field nitrogen reduction solutions to improve nutrient delivery in agricultural processes.

8.1 Phase I: Technical Submission for Determination of Finalist Teams

Following review of a technical abstract, Phase I will consist of a Technical Submission, which will be similar to a response to a Request for Proposal or a Request for Qualifications.

Teams must also sign and accept the terms listed in the Team Agreement, provided on the Nitrogen Reduction Challenge website. A Team is not eligible to compete and will be eliminated unless the **Team Agreement is executed and provided to Tulane by 11:59 PM CT, on September 30, 2016**, the deadline for the Phase I Technical Submission.

Please note: Only the first 100 Technical Submissions will be accepted and reviewed.

The following are the requirements for the Technical Submission via the **official online template** on the competition website (<https://challenge.tulane.edu>):

Teams must complete the Technical Submission by 11:59 PM CT, on September 30, 2016.

1. Executive Summary

- a) *Provide a summary of the in-field solution, its application in agriculture, testing results, and any economics associated with the in-field solution*

2. System Design

- a) *Description of the In-Field Solution*

Under the description of the in-field solution please ensure the following

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

sub-headings are included:

- Operation of In-Field Solution
- Scientific Merits of Proposed Approach
 - What is the solution's benefit to agriculture?
- Economic Benefit to Agriculture
- Environmental Benefit to Downstream Aquatic Ecosystems

b) Performance Evaluation of In-Field Solution

Under this description Tulane and Challenge Administrators are interested to know how the solution has performed in beta-trials. Please ensure the following sub-headings are included:

- Solution Quality Assurance Quality Control.
 - Provide characteristics of the in-field solution or technology including limits of detection, accuracy¹, precision², and lifespan. If the solution has been tested, under what environmental conditions was it tested?
- Market Viability
 - If the in-field solution or technology has undergone any market suitability testing describe the results, test market, and feedback
 - If the in-field solution or technology is about to undergo market validation, measurement evaluation, or any other beta- testing describe timelines for testing, conditions, and hypothesized results.

c) Cost

Under this description Tulane and Challenge Administrators are interested in all aspects of the cost associated with the in-field solution. Please ensure the following sub-headings are included:

- Cost Components of Solution
 - What is the initial cost of the in-field solution? What would be the start-up cost to the agricultural producer?

¹ Accuracy is defined as a measure of the bias of the method (i.e., the level of agreement of a measurement with a known true value) and includes components of random error and systemic error.

² Precision is defined as a measure of the reproducibility of analyses under a given set of conditions

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

- What is the anticipated return on investment? Describe the economics of savings of the in-field solution of the production system if necessary.
- What are the costs associated with maintenance of the in-field solution? Sustainability of the units?
- Scalability of Solution.
 - If this solution was to be scaled to 200,000 acres or a million acres what are the economics of scaling up. What are the economies of scale associated with the solution?

d) Implementation Plan

Under this description Tulane and Challenge Administrators are interested in understanding how the in-field solution is going to be implemented in field scale agricultural systems. Please ensure the following sub-headings are included:

- Integration with existing management systems.
 - How does the in-field solution integrate with existing nutrient management systems?
- Adoption Hurdles
 - What are some of the hurdles and/or challenges to adoption of the in-field solution?

3. Challenge Team (no page limit; does not count toward 20-page maximum)

- a) Name, Title, and position description on the Challenge Team*
- b) 1-page bio on each challenge team member*

4. Supplemental Material (no page limit; does not count toward 20-page maximum)

Please provide any past surveys, test results, marketing strategies, and other applicable information and materials that will help in the evaluation process.

8.1.1. Review and Evaluation of Phase I

All submissions will be reviewed and evaluated by the Challenge Advisory Committee. Each submission will receive two independent reviews. Committee members will judge every submission according to the following criteria (weights associated with each criterion in parentheses):

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

1. Completeness of submission **(5)**
2. Technical validity **(50)**:
 - a. Did the team articulate the technical validity of the proposed approach?
 - b. Scalability of solution
 - c. Sustainability of solution
3. Integration into agriculture **(35)**:
 - a. How feasible is the solution in agriculture?
 - b. Do you think the solution can be adopted by farmers?
 - c. Is the solution cost effective?
 - d. Would the solution have potential to be broadly adopted?
4. Innovative **(10)**
 - a. Is the solution novel?
 - b. Does the system integrate or address problems in an innovative manner?

Total Phase I Project Score: 100

Upon completion of the final reviews, the Challenge Administrators will assimilate all of the reviews, and summarize outcomes. The Challenge Advisory Committee will then come together and discuss the scores of the submissions. The Challenge Advisory Committee will rank the Technical Submissions; after which they will agree upon the top up to five (5) proposals that will be recommended to move forward to Phase II. Tulane and Challenge Administrators will officially name the Finalist Teams advancing to Phase II of the Challenge.

All decisions are final and binding; neither Tulane and Challenge Administrators, nor the Challenge Advisory Committee will enter into a dialogue about this decision.

Teams whose proposals are selected will be notified of their status as Finalist Teams and appropriate media release information will be provided.

If no qualifying submission can be verified at the completion of Phase I, the competition may reopen to new/previously registered teams, at the sole and absolute discretion of Tulane University. Any new technical submissions from any team will be considered according to the protocol described above.

8.2 Phase II: Solution Demonstration and Evaluation for Determination of a Winner

Finalist Teams chosen for Phase II will enter into a rigorous in-field trial, which will demonstrate how their solution helps maximize nutrient efficiency while also maximizing crop yield.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Teams will be responsible for paying all costs, travel, and miscellaneous expenses associated with participating in Phase II of the Nitrogen Reduction Challenge.

Tulane and their supporters will be responsible for usual costs associated with operating the test site, facility personnel, and Challenge Advisory Committee, as well as the soil and stalk testing, seeds, and general farm operations. Each team will be responsible for supplying their own fertilizer for the duration of the trial. Each fertilizer product used will be tested for N content at a third party agronomic laboratory.

Phase II Administration:

An independent test site in the state of Louisiana, under supervision of a third party, will be used to deploy the in-field solutions and will be used for the solution demonstration and evaluation over the 2017 growing season trial period.

- Finalist Teams meet at a designated test site to setup solution systems in their assigned plots.
- After all solutions are in place and operational, Finalist Teams will witness the planting of the test crops.
- Test crop will be corn.
- All potential variables, including soil, water (i.e., irrigation), and corn variety will be similar across replicates to reduce variability amongst competing Teams.
- Seeds will all be the same variety, supplied by the same vendor; Vendor name will be kept confidential. Variety type will be made known to the competitors.
- All test plots will have soil testing completed on them in the Fall of 2016, and within two weeks of planting to provide Finalist Teams soil N, P, and K levels of the respective trial plots.
- Planting density will be constant between Finalist Teams, and will be determined by the Challenge Advisory Committee, but consistent with planting density on the farm of operation.
- All plots will have stalk nitrate testing. Stalk nitrate testing will occur at V10 stage and Black Layer stage. All stalk nitrate tests will occur at the same time for every plot.
- Each Finalist Team will have three distinct test plots, each of which is no greater than five (5) acres in size, in which to demonstrate their solution effectiveness. Plots will be separated by a 4 row buffer not planted with corn, and a higher row for eliminating surface runoff interaction.
- All plots will be randomized throughout the test facility to account for light, temperature, and variability in other factors.
- Security measures will be in place to validate Quality Assurance/Quality Control (QA/QC) protocols. Fertilizer of respective competitors will be labeled, stored, and an accounting of weight kept by Challenge Administrators.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Each Finalist Team will supply their own fertilizer in a secure container at the beginning of Phase II:

- Fertilizer applications will have to be weighed on a common, calibrated scale.
- Fertilizer applications will have to be documented with photographic evidence of scale weight of applied materials.
- Finalist Teams have complete autonomy to when and how much fertilizer should be applied to plots.
- A third party agronomist will apply the fertilizer in a designated and controlled manner.
- Finalist Teams will be given supervised access to the test site to repair/replace components of the solution as necessary.
- Challenge Advisory Committee members as well as Challenge Administrators will spot-check QA/QC protocols (fertilizer before and after weights, distribution amounts etc.) and conduct site visits.

Finalist Teams will be notified of a specific period during which all crops will be harvested at the designated test site:

- Finalist Teams will meet at the designated test site with Challenge Administrators to witness the harvesting of the test crops and remove their solutions, if necessary, in their assigned plots. Plots will be harvested by third party agronomist, and yields determined by plot by third part agronomist by the use of yield monitors, and weigh-wagons.

All Finalist Team's fertilizer use data and yield data will be recorded by the third party agronomist and provided to the Challenge Administrators and Challenge Advisory Committee to determine the Finalists.

Additionally, by 11:59 PM CT on October 15, 2017, Each Finalist Team is required to provide a document to the Challenge Administrators and Advisory Committee describing how their solution helped to determine application rates and timing of the test plots, and resulted in minimizing the amount of nitrogen available to move downstream, thus improving water quality, and eventually decreasing hypoxia in coastal environments. A template will be provided to the Finalist Teams for completion.

8.2.1 Review and Evaluation of Phase II for the Determination of a Winner

The Challenge Advisory Committee will review the QAQC protocols³ recorded for each Finalist Team. Once verified, the Challenge Advisory Committee will calculate the

³ QAQC protocols include an evaluation of reporting requirements for fertilizer weight measurements, harvester calibration metrics including precision and accuracy of yield reporting, and verification of harvester bushel totals.

TULANE UNIVERSITY
NITROGEN REDUCTION
 GRAND CHALLENGE

“Utilization Efficiency,” from the data gathered on the respective Finalist Team trial plots using the following equation:

$$\frac{1}{(\text{Total Weight of Given Fertilizer} - \text{Weight of Fertilizer Remaining})} \times \text{Yield} \times \text{Profit}$$

Where cost of fertilizer (where applicable) and cost of corn are pinned market prices standard across all competitors to determine profits. Profits are calculated on a per acre basis.

Similarly, the Challenge Advisory Committee will calculate a rough nitrogen budget using the following equation:

Nutrient Availability

$$= \left(\text{Final Soil N} - \text{Initial Soil N} \left[\frac{\text{kg}}{\text{acre}} \right] \right) + (\text{Amount of N applied [kg]}) \\ - \left(\text{Mean Stalk Nitrate test} \left[\frac{\text{mg}}{\text{bushel}} \right] \times \text{yield [bushel]} \right)$$

Threshold: A threshold will be placed on crop yield – i.e., at a minimum 120 bushels of corn must be harvested /acre.

The winner of the Challenge will be based on the following evaluation criteria:

1. Utilization Efficiency **(50)**
2. Implementation of in-field solution into existing management **(25)**
3. Adoption of in-field solution by the agricultural industry **(15)**
4. Market promise of in-field solution **(10)**

Total Phase II Project Score: 100

All categories will be evaluated by the Challenge Advisory Committee and independent experts on documented results, implementation of in-field solution, as well as ancillary factors associated with potential for adoption within the agricultural market place. The top performer will be identified by Tulane and the Challenge Advisory Committee. Tulane and the Challenge Administrators will officially name the Winner of the Nitrogen Reduction Challenge. The Team will be notified of their status as a winner, and appropriate media release information will be provided.

If it is determined by Tulane and the Challenge Administrators that the Finalist Teams are not able to achieve/demonstrate the stated goals of the Nutrient Reduction

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Challenge, a prize will not be awarded.

All decisions are final and binding and Teams may not appeal decisions; neither Tulane, the Challenge Administrators, nor the Challenge Advisory Committee will enter into a dialogue about this decision once finalized.

Section 9: Public Relations/Media/Marketing – Cooperation and Support

The Qualified Team agrees that it is in its best interest to participate and cooperate fully with Tulane and Nitrogen Reduction Challenge Administrators in all public relations, advertising, marketing and content distribution efforts related to the Nitrogen Reduction Challenge and will be required to sign a Tulane Media Consent Form in order to achieve the aforementioned activities. The Team acknowledges that Tulane and the Challenge Administrators intend to provide continuous information to the public regarding the Nitrogen Reduction Challenge, Team stories, and Team progress. The Team acknowledges that Tulane may seek to create a long-term public educational legacy from the Nitrogen Reduction Challenge, and as such may continue public relations efforts upon conclusion of the Challenge to keep its goals and objectives in the public eye.

9.1 Required Website Updates

A public facing informational website (tulane.edu/tulaneprize/waterprize) has been created for the Nitrogen Reduction Challenge. The website is intended to educate the public and serve as the source for regular updates regarding the Nitrogen Reduction Challenge. Each Team will have a page featuring the Team and dedicated to its efforts. The active (defined as Teams officially participating in the Nitrogen Reduction Challenge at any given phase) Teams are required to provide a minimum of one update to the website per month throughout the duration of the Nitrogen Reduction Challenge, beginning the month their Registration Application is accepted.

The update may be a video, photo, or written update on the progress of the Team or related topic. Updates will be provided to the Nitrogen Reduction Challenge Administrators.

9.2 Social Media Outreach

Tulane will use social media to promote the Prize and the Teams. It is suggested that, at a minimum, each Team will create and manage a Team specific Facebook page and Twitter feed. Guidance regarding the creation of a Facebook page and Twitter feed will be provided to the Team via a webinar hosted by Tulane and the Nitrogen Reduction Challenge Administrators.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

9.3 Mandatory Events

The following events require mandatory participation if a Team wishes to remain eligible to be awarded the prize purse(s) or any other funding associated with the Nitrogen Reduction Challenge:

Phase II – Finalist Teams - Preparation, planting and harvesting of crops at Challenge designated location in the state of Louisiana.

Finalists may also be required to participate in an awards ceremony to be held following the testing period, at a TBD location for the purpose of announcing a Winner.

Section 10: Sponsorship, Logos and Branding

10.1 Team Sponsorship

Teams are encouraged to seek sponsors to assist them in their participation in the Nitrogen Reduction Challenge. Teams are prohibited from seeking sponsorship from companies within the tobacco, firearms, alcohol, and other industries whose ideals are not aligned with the priorities of the Nitrogen Reduction Challenge, as determined at the sole discretion of Tulane.

10.2 Team Name and Team Logo

Teams are required to develop a “Team Name” and logo for use throughout the Nitrogen Reduction Challenge. Tulane reserves the right to accept or reject chosen Team Names and / or logos if deemed inappropriate or were previously approved for used by another competing Team.

10.3 Prize Name and Prize Logo Use

Teams are granted permission to use the Tulane University Nitrogen Reduction Challenge name and logo on its materials, including its website, informational materials and merchandise. The use of the Challenge name and logo are outlined in the Branding and Logo Usage Guidelines in Appendix A.

Teams are prohibited from using the Tulane logo as a separate entity from the Nitrogen Reduction Challenge logo. Should a Team utilize the Tulane logo, the Team will be required to remove the name/logo immediately. Lack of compliance may result in the disqualification of the Team.

10.4 Merchandising

Teams are permitted to generate Tulane University Nitrogen Reduction Challenge tangible

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

items such as hats, shirts, mugs, and other appropriate items for limited and targeted use, not for sale purposes. Teams are required to follow the guidance provided in the Branding and Logo Usage Guidelines in Appendix A.

Tulane reserves the right to review any Team usage of the Challenge name and / or logo and accept or reject specific applications. Should a Team utilize the Challenge name and /or logo in an unacceptable manner, the Team will be required to remove the name/logo immediately. Lack of compliance may result in the disqualification of the Team.

10.5 Team Uniforms

It is not required that Teams produce uniforms for the Nitrogen Reduction Challenge, but should Teams choose to do so, at their own expense, they must follow the logo usage guidance provided in the Branding and Logo Usage Guidelines in Appendix A.

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Appendix

Appendix A: Branding and Logo Usage Guidelines

Teams are granted permission to use the Tulane Nitrogen Reduction Challenge (Tulane Challenge) name and logo on its materials, including its website, informational materials and merchandise for marketing purposes. All teams that utilize the logos must abide by the written guidelines below.

To present a consistent, professional image, it is imperative that all Tulane Challenge communications--print and online--clearly establish their connections to the university and challenge. These guidelines will inform you about brand guidelines, how to use Tulane logos, wordmarks and trademarks, and a style guide unique to the Tulane Nitrogen Reduction Challenge.

1.0 Misuse

Teams are prohibited from using the Tulane University logo as a separate entity from the Nitrogen Reduction Challenge logo or wordmark. Should a Team utilize the Tulane University logo, the Team will be required to remove the name/logo immediately. Lack of compliance may result in the disqualification of the Team.

Should a Team utilize the Challenge name and /or logo and/or wordmark in an unacceptable manner, the Team will be required to remove the image immediately. Lack of compliance may result in the disqualification of the Team.

2.0 Approval for Use of Logo

Tulane and Challenge Administrator reserve the right to review any Team usage of the Challenge name and / or logo and accept or reject specific proposed uses of logos.

In order to utilize a logo on web, print or promotional materials, teams must submit a mock-up for approval by the Challenge Administrators to tuchallenge@tulane.edu.

Teams may only utilize one of the six images shown below under section "Official Logos".

3.0 Official Logos & Wordmarks

Teams may only utilize one of the six images shown below:

Image 1: Stacked Logo w Image color

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Image 2: Stacked Logo w Image b/w

Image 4: Square Logo w Image color

Image 5: Square Logo w Image b/w

Image 3: Horizontal Wordmark color

Image 4: Horizontal Wordmark b/w

Use of other Tulane University logos are strictly prohibited.

Image 1: Stacked Logo w Image color

Image 2: Stacked Logo w Image b/w

Prints 4 color process

Prints 1 color (PMS 2747 Blue or black)



Image 3: Square Logo w Image color

Image 4: Square Logo w Image b/w

Prints 4 color process

Prints 1 color (PMS 2747 Blue or black)



TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

Image 5: Horizontal Wordmark color

Prints 4 color process

Image 6: Horizontal Wordmark b/w

Prints 1 color (PMS 2747 Blue or Black)



4.0 Important Restrictions

Restrictions:

- Anyone interested in using these logos and wordmarks should not attempt to recreate them, or allow any printer, typesetter or design professional to do so. Official logos are available from the Challenge Administrators.
- Tulane Challenge logos and wordmarks must not be altered in any way.
- No additional typography or images can be added to any Tulane Challenge logos or wordmarks.
- The wordmark and logo cannot be screened, flopped or scaled out of proportion. The wordmark and logo should not be contained within a box or shape, and normally should be printed on a solid color background.
- No other colors can be used for printing or any web image of the Tulane Challenge logo other than those identified in this manual. (See section on "Colors" below)

5.0 Minimum Sizes

- Wordmark (Horizontal) Version: 1.875 inches wide
- Globe (Vertical) Version: .425 inches wide

6.0 Colors

The official Tulane Challenge color is blue. Screen versions of the logo should appear using the full color gradient version(s) provided.

When used in print, every effort should be made to use the full color (4 color process) version of the logo. If print production is restricted to one color, PMS 2747 Blue should be used. An

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

acceptable alternative is Black.
NOTHING ELSE IS ACCEPTABLE.

7.0 Promotional Materials

We love to see Tulane Challenge logos and watermarks on t-shirts, water bottles, cups, pens, or really any item that displays our logo well. If you have an idea for a product that you would like to proudly bear a Tulane Challenge logo, please be sure the products comply with these guidelines.

Tulane requires that all Teams receive written approval of the proposed image. Teams can send mock-ups to tuchallenge@tulane.edu for approval. Approval from Challenge Administrators is required before any vendor may produce products of any nature displaying Tulane Challenge indicia.

8.0 Prohibited Use

We are proud of our Tulane Challenge logos and wordmarks and they are intended to present a positive image of Tulane and the Challenge, so they may not be altered in any way.

The logos are not to be used in any way that discriminates or implies discrimination against any persons or groups based on age, ancestry, belief, color, creed, disability, national origin, race, religion, sex, sexual orientation or veteran status, or in any other way that would be a violation of the university's anti-discrimination policies.

The use of Tulane Challenge logos and/or wordmarks with the following types of products will not be approved:

- products that could be used to injure or kill;
- alcohol-related products;
- tobacco-related products;
- sexually suggestive products;
- food and beverage products and accompanying packaging (other than for limited internal consumption in connection with official university events);
- products that present an unacceptable risk of liability;
- products that are inimical to the mission or image of the university.

Certain artwork or designs will not be approved for use in conjunction with the logos and/or wordmarks. These include the following:

- art depicting the use or endorsement of alcohol;
- art depicting the use or endorsement of illegal drugs;
- art depicting the use or endorsement of tobacco products;

TULANE UNIVERSITY
NITROGEN REDUCTION
GRAND CHALLENGE

- art depicting the use or endorsement of firearms or other weapons;
- art depicting racist, sexist, hateful, demeaning or degrading language or statements;
- art depicting profanity;
- art depicting sexual acts;
- art depicting statements impugning other universities;
- art or a design incorporating trademarks or copyrights not owned by the university, unless written permission for such use satisfactory in form and substance to the university is obtained from the mark holder or copyright owner.

9.0 Contact

Any questions about these written guidelines may be addressed by contacting Challenge Administrators at tuchallenge@tulane.edu.